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Dark Brahma Cock "Eldorado II."

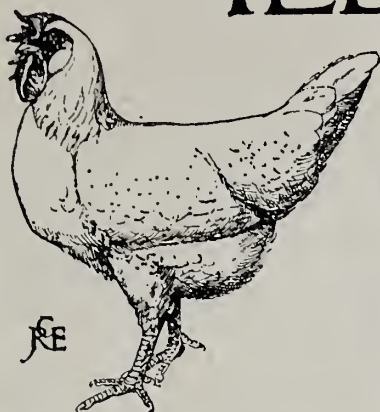
Son of Eldorado I., which won the Cup at Birmingham in 1906.

BRED BY AND THE PROPERTY OF L. C. R. NORRIS-ELYE.

Winner of 1st. Palace, 1908 ; 2nd, Birmingham, 1908 ; 1st, Palace, 1909.

Another son of Eldorado I. bred the 2nd and 3rd Palace winner in 1909, and the Cup winner at Birmingham 1909.

THE ILLUSTRATED POULTRY RECORD



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DIARY OF THE MONTH.

EDITORIAL NOTICES.

Telegrams: "CHICKENDOM." Telephone: 1999 P.O. CITY.
ENTERED AT STATIONERS' HALL.

The Editor will be glad to consider any MSS., photographs, or sketches submitted to him, but they should be accompanied by stamped addressed envelopes for return if unsuitable. In case of loss or injury he cannot hold himself responsible for MSS., photographs, or sketches, and publication in the ILLUSTRATED POULTRY RECORD can alone be taken as evidence of acceptance. The name and address of the owner should be placed on the back of all pictures and MSS. All rights of reproduction and translation are reserved.

The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.

The Annual Subscription to the ILLUSTRATED POULTRY RECORD at home and abroad is 8s., including postage, except to Canada, in which case it is 7s. Cheques and P.O.O.'s should be made payable to Brown, Dobson, and Co., Limited.

The ILLUSTRATED POULTRY RECORD is published on the first of every month. Should readers experience any difficulty in securing their copies promptly they are requested to communicate immediately with the Editor. The latest date for receiving advertisements is the 20th of the month preceding date of issue.

The utmost care is exercised to exclude all advertisements of a doubtful character. If any reader has substantial grounds for complaint against an advertiser he is requested to communicate at once with the Editor.

The Fox Conference.

On April 12 the representatives appointed by the National Poultry Organisation Society, the Poultry Club, and the Utility Poultry Club met several members of the Masters of Foxhounds Association at Tattersall's. The latter included Mr. E. E. Barclay (Puckeridge), Mr. G. R. Lane-Fox, M.P. (Bramham Moor), Lord Leconfield (Sussex), Lord Manvers (Rutland), Mr. C. McNeil (Grafton), and Lord Willoughby de Broke (Warwickshire). The case on behalf of the Poultry Industry was stated by Mr. W. A. Jukes, who submitted that (1) there must be a clearly defined delimitation of boundaries, with responsibility by hunts within these; (2) that sub-committees be formed in each district, on which shall be expert poultrymen to fix values; and (3) that compensation shall be paid to everyone losing birds by foxes on the actual value, and promptness in settlement of claims. The question was discussed fully and frankly on both sides, with the evident object of arriving at a settlement. It was clearly shown that those hunts which have caused the greatest amount of loss by their own neglect must be brought into line, that there must be no discrimination between one and another in the settlement of *bonâ fide* claims, and that the compensation paid must be adequate. The representative masters undertook to bring the subject before the annual meeting of the Association in May, when it is hoped that representatives of that body will be appointed with power to enter into an arrangement satisfactory to poultry-keepers and binding on all the hunts.

National Poultry Institute & Experiment Station.

In our March issue the announcement was made that a proposal was under consideration

for the establishment of a National Poultry Institute and Experiment Station, and in the Educational Section a brief report is given of a preliminary meeting held with that object in view, which will, we hope, result in the foundation of a central institution on an adequate scale, thus removing what has been felt to be a great lack in our educational system, in which respect the United Kingdom has lagged behind other countries. To a large extent such deficiency has been due to the difficulty in securing grants from public funds, but with the passing of the Development Act of 1909 that should be no longer the case. The POULTRY RECORD has endeavoured to press this matter home, and we are glad, therefore, to see that action has been taken. But there has been something more—namely, a want of interest on the part of those upon whom the responsibility of management must rest. That appears to be no longer the case, and it is satisfactory to report that several of the leading Agricultural and Poultry Societies appointed representatives, and that some well-known ladies and gentlemen have consented to act on the Preliminary Committee. The draft scheme submitted to the meeting has received the provisional approval of the Board of Agriculture and Fisheries, which department has promised its support in order to obtain adequate grants from the Development Fund, provided that money for equipment and maintenance is forthcoming. A scheme of this nature involves much consideration, but all who are interested in the promotion of the poultry industry will share in the hope that it may be carried through to a successful issue.

A Distinguished Visitor.

The poultry work at the Maine Agricultural Station has commanded the attention of breeders all over the world, more especially as to the efforts put forth to advance the egg-laying quality in domestic fowls. Although the authorities had to acknowledge that much of the earlier information was unreliable, and by no means so favourable as at first stated, they were courageous enough to put themselves right with the world, and practically start afresh, placing the task in the capable hands of Dr. Raymond Pearl, whose reports have proved to be, as far as they have gone, of the greatest value, practically as well as scientifically. We have been glad, therefore, to meet and welcome Dr. Pearl to this country. Since his arrival he has visited several poultry centres, examining our English methods, and he is now on the Continent, where before returning to America in July he hopes to visit France, Belgium, Holland, Denmark, and Ger-

many. We bespeak for him a warm welcome from poultry men wherever he may go, for his own sake, the work he has already done, and what is yet to be accomplished.

Wales and the Missionary Train.

The abundant notices of what has been called the Egg Train, which toured in South Wales from April 15 to 23, appearing in the daily and weekly journals, makes any lengthy account superfluous to readers of the POULTRY RECORD. At the send-off from Paddington Station, many people, inclusive of Sir T. H. Elliott, K.C.B., Secretary of the Board of Agriculture, Lord Monteagle, of the Irish Agricultural Society, Sir Francis H. Channing, Bart., M.P., Mr. F. W. Verney, M.P., Mr. J. Nugent Harris, Mr. H. F. Woolf, and leading officials of the Great Western Railway Company gathered to see the Demonstration Car and to wish success to what is the first missionary poultry train in this country, though from all we hear it is likely to be copied to a considerable extent. The



THE EGG TRAIN AT PADDINGTON STATION.

[Copyright.]

Demonstration Car was fitted with models of various forms of poultry houses, incubators, and brooders, cramming machines, egg boxes, &c., and the walls were well covered with charts and breed pictures. Eggs of various kinds were on display—namely, English, French, Danish, Italian, and Styrian—and some splendid examples of Sussex fowls (dead), to indicate what the market requires and in what form. The party, which included several Press representatives, was accommodated in a saloon carriage, with a passage communicating with the Demonstration

Car. The baggage compartment was formed into a dark room, where the testing of eggs was shown at the various points visited.

An Unqualified Success.

All the way down people were gathered at the stations to see the train, and from the first halt at Llanelly to the final meeting at Carmarthen the tour was an unqualified success. The interest manifested was very great indeed, and South Wales has been stirred in a manner never before known in connection with any branch of agriculture. At each station the cars were shunted into a convenient siding, and as long as they remained there, those in charge were kept busily engaged in showing the exhibits or discussing methods of organisation and marketing with local committees and individuals. Crowds came to see and learn, and at some places as

thirty years ago, and those manure-heated of centuries before, were fireless, though not heatless. Both these types have been re-introduced lately, but vary somewhat in form from the originals. That they can be successfully used is unquestionable, but the labour involved is much too great for operations on a larger scale. They involve, however, no new principle. Very different is the heatless brooder, introduced by Mr. E. W. Philo, in which the chicks are reared without any artificial warmth. It will be remembered that last year an experiment was carried out on the College Poultry Farm, Theale, as reported in the *Journal of the Board of Agriculture*, which justified further investigations, and showed that chickens can be reared, at any rate during the milder months of the year, without artificial heat; but since that time the claim has been



THE DEMONSTRATION CAR AT PADDINGTON STATION.

[Copyright.]

many as 500 people entered the cars in the two or three hours available. The meetings, whether at public rooms or on the station precincts, were well attended, and it is calculated that 8,000 to 10,000 people have been reached in this way, the majority of whom live in out-of-the-way sections of the country. At nearly every point a smaller meeting of local committees was held in the saloon car, where details were discussed.

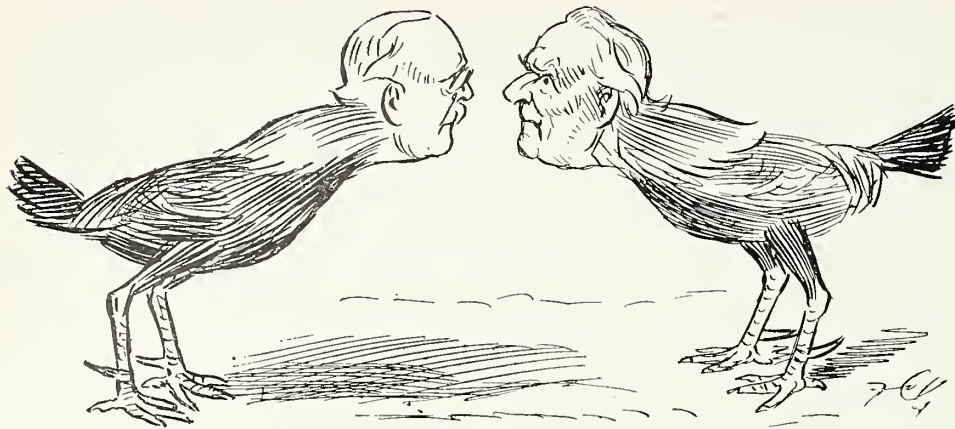
Fireless Brooders.

Much has been said of late in Transatlantic journals as to what are designated Fireless Brooders, which are by no means the novelty some people imagine. The hydro-brooders of

made that it is equally successful in the winter season. We should strongly urge, however, that before breeders alter their methods they should test the newer system and not jump to conclusions which may be disastrous if applied widely.

Supplementary Cost in Production.

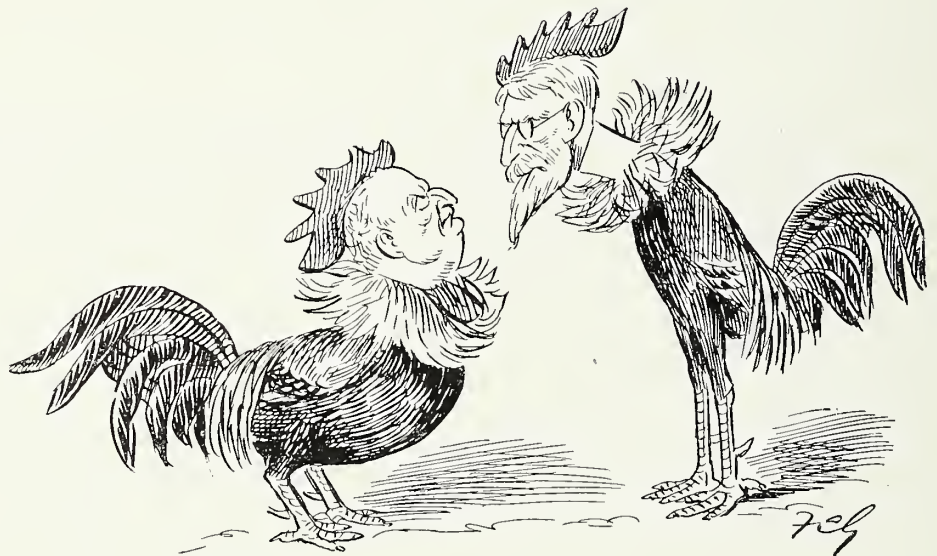
The special efforts that are now being made to organise the poultry industry suggest one direction in which the cost of production might be very materially lowered—viz., relative to the very considerable cross-traffic in table poultry, both alive and dead, but more particularly the former. The only attempt at organisation that



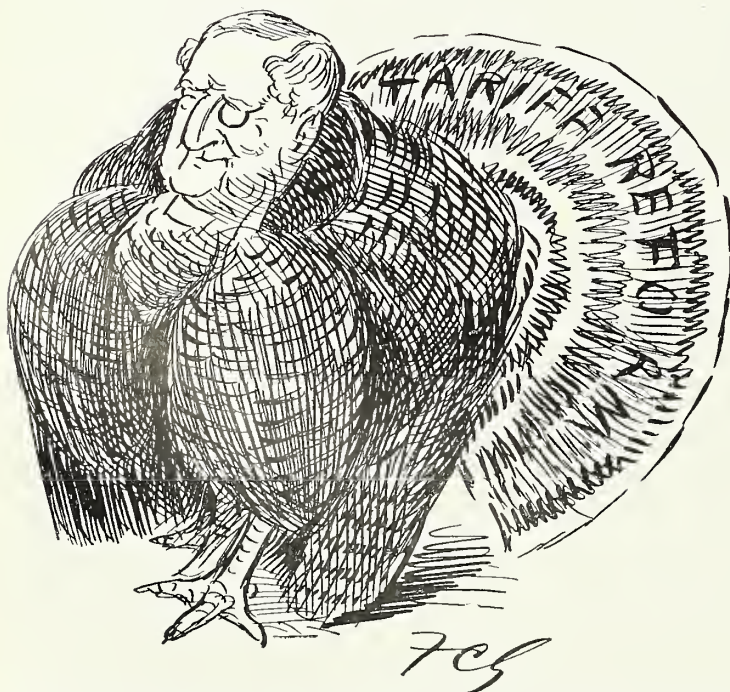
THE FIRST SPAR

THE POULTRY BOOM.

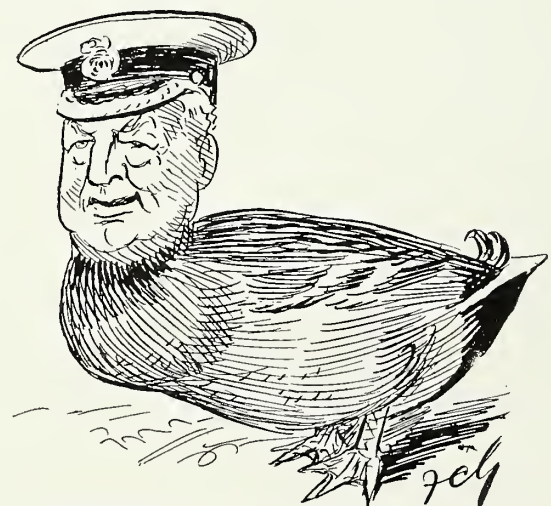
One effect of the public attention now being bestowed on poultry is the appearance of some well-known politicians in the characters of the poultry yard.



THE IRISH BIRDS (MR. REDMOND AND MR. WILLIAM O'BRIEN).



THE PATRIARCH OF THE POULTRY YARD (MR. CHAPLIN).



A WATER-PARTY ASHORE (LORD CHARLES BERESFORD).

By kind permission of the *Westminster Gazette*.

exists at present is due to the commercial enterprise of agents who focus the collections of smaller middlemen, as chiefly exemplified in the supply of the chicken fatteners of the South-East. This method is, however, one that primarily benefits middlemen and railway companies, and is only made use of by the fatteners because they cannot fill their coops with locally-reared birds. The addition of the cost of carriage to the local lean value of the chickens is a very serious impost, particularly in view of the fact that the same fowls will have to bear the cost of further carriage as dead poultry. Moreover, the cost to the actual user of the lean chicken, whose raw material it is, is entirely—in the great majority of cases—disproportionate to the price paid by the collectors to the rearer. It is obvious that such supplementary cost could be largely reduced by co-operative methods, and in time probably almost entirely obviated by a general system of organisation, as applied to the complementary branches of production. The fact that one fattener has stated that he pays from £80 to £100 a month for the carriage of live lean chickens, in addition to their subsequent cost for carriage as dead fattened produce, is sufficiently indicative of the economic importance of such supplementary cost to the industry as a whole.

Possible Consumption.

The large consumption of eggs and poultry in the United Kingdom has been dealt with in the Press during the last few weeks to an extent never known before. That the figures are large beyond the imagination of most people is certain. When we talk of more than a quarter of a million tons of eggs and 67,000 tons of poultry being eaten or used every year, and £8,000,000 paid for imported produce, the mind is staggered. But, as pointed out by "Statistician" in the POULTRY RECORD, of February, 1909 (page 284, Vol. I.), when these are divided up they mean very little indeed, as compared with what might be. The average of eggs is but 114 per head of the population of Great Britain per annum, and of chickens six-sevenths of a bird every twelve months. Two and a quarter eggs per week and one chicken in thirteen months is a very modest quantum, especially the last-named. If it is possible to contemplate the time when the average consumption of eggs was one per head of the population per diem, we should need nearly 805,000 tons every year, or something like 13,650 millions. One of the French kings stated that he hoped for the time when every peasant had a fowl in the pot. But if we could imagine one fowl in every household per

week, there would be required annually upwards of 390 millions to supply our population, or more than 690,000 tons. The United States Agricultural authorities estimate the yearly poultry crop as valued at £120,000,000 sterling, which, if correct, would show that the average consumption in America is twice what it is in Britain; yet all is native production.

The Late Sir Walter Palmer, Bart.

The death of Sir Walter Palmer, Bart., has removed an earnest and generous supporter of the poultry industry, one who has done more in this direction than is generally known. A member of the famous Reading firm of Huntley and Palmer, Sir Walter has ever shown a great interest in rural pursuits. His first direct connection was in 1899, when he acted as chairman of the First National Poultry Conference, held in that year, and to the success of which he contributed greatly. About the same time he



THE LATE SIR WALTER PALMER, BART.

accepted a seat on the Committee of the National Poultry Organisation Society, and, until his Parliamentary and other duties absorbed more of his time, was very assiduous in working for its interests, acting as treasurer for three years. His financial support was very generous indeed. Meanwhile, he had established a practical poultry section at Kilby's Farm, near Windsor, the records of which, in "Poultry Management on a Farm," did much to help forward poultry-keeping. When the second National Poultry Conference was held at Reading in 1907, Sir Walter again acted as chairman of the Committee. He sat as M. P. for Salisbury from 1900 to 1905, and in the last-named year received a baronetcy. His loss will be keenly felt in many directions, and by none more than those associated with him in the promotion of the poultry industry as part of agriculture.

BANTAMS AS UTILITY FOWLS.

By EDWARD BROWN, F.L.S.

"There is probably no country where so many Bantams are kept as there [Belgium], chiefly by residents in towns and manufacturing centres. . . . In the Liege district many miners breed Bearded Bantams, and often obtain an average of 150 eggs per annum from each hen, all of which are consumed at home. It is for that reason the Bantam and other Clubs advocate the encouragement of breeding this type of fowls specially for the sake of the children, who would probably never taste an egg if large fowls were kept, as their parents would be tempted to turn them into money."—*Belgian Report*.

MANY years ago my old friend, the late George Hall, well known as a breeder and judge of Game Bantams, was wont to declare that of all fowls the Bantam was the most profitable for utility purposes, taking into consideration the space occupied and amount of food consumed. In regard to the number of eggs produced, and their size as compared with that of the body, and their flesh qualities, he claimed that they had no equal, giving remarkable figures of what had been accomplished by his own birds, kept then in a garden at Kendal. The same view was held by the late

Other evidence could be cited, but the above will suffice as a justification for consideration as to whether Bantams may not receive an encouragement hitherto denied them for their value to those who, by the exigencies of their position, are unable to keep larger fowls. Popular as exhibition poultry they have been, and are likely to remain so, for they are fascinating in the extreme, but in this country few people keep them for anything save ornament or exhibition.

As pointed out in my "Report on the Poultry Industry in Belgium," quoted above, there are



THE BANTAM HOUSE AT EVERBERG.

[Copyright.]

W. F. Entwisle, and in his standard work on "Bantams" I find the following:

In these days, objections are often made by neighbours against the crowing in the small hours of the morning of the large birds, such as Brahmas and Cochins, &c., but we think we have never heard of a Bantam cock being brought before the magistrates for such a grave offence. Bantams, too, are small eaters, fairly good layers of larger eggs, in proportion to their size, than most breeds (and the most delicious eggs, too, they are), and as mothers they quite stand at the top of the list.

many points of resemblance between that country and our own in respect of conditions and environment. Hence comparisons are of interest and may be useful. For centuries the Belgians have been keen and successful poultry-breeders, and it would appear that Bantam-breeding has had a place all the time, though to a greater extent during later years owing to the vast increase of the industrial and commercial population. In the POULTRY RECORD of August, 1909 (Vol. I., page 693), M. Louis

Vander-Snickt gave an account of the Bearded Antwerp Bantam and of the Barbu Nain Club, to which reference may be made for information as to the steps taken to encourage and develop this class of poultry. The results of forming that Club have been very great indeed. New types and races have been evolved or are in process of evolution, some of which are among the most beautiful I have yet seen.

ening our working-class population is deprivation of suitable foods, either as to quantity or nutritive elements. Where money is none too abundant the temptation is very strong to sell whatever will realise a good price, and buy substitutes—often deleterious—of a cheaper class. But it is claimed that where Bantams are kept, that is not so. The households are supplied with new-laid eggs, small in size but rich in



DUTCH GARDEN, EVERBERG.

[Copyright.]

When in Belgium recently, I suggested to the President of the Barbu Nain Club that a display of these various races at one of our great English Shows would be desirable, and he regarded the idea with favour. That, however, is one aspect of the question. My present purpose is in another direction.

When the Club named was formed utility value occupied a leading place, and still does, though I am inclined to think not quite to the extent anticipated. At the same time, however, the Club has done much to encourage Bantam-keeping among town and suburban residents, where larger fowls would be out of place, mainly in view of supplying household requirements. Bantam eggs and Bantam chickens have no demand on the market. Both are too small in size. Hence there is no temptation to dispose of the produce which is consumed at home, and the children benefit thereby. That is a decided gain. One of the dangers threat-

quality, and occasionally with birds, also diminutive, yet, *pro rata* to the weight, excelling in the amount of flesh. This is a new aspect of the question, but one which has much in the way of justification. We have been so accustomed to regard Bantams merely as ornamental, as, in fact, they are and will be, that the possibility of keeping them as a means of food supply has not entered into our minds. It may be that the Belgians have led the way to what will prove an enormous economic development. With the increasing size of towns and residential districts and the growing restriction of land, combined with the fact that the later tendency has been to insist upon houses having more ground than the working-class dwellings of an older type, and also with the provision of allotments, intensification becomes more and more urgent. In multitudes of places ten or a dozen Bantams can be kept in health and vigour where two or three larger

fowls would be too many, and there are few allotments where Bantams could not be kept to a much greater extent. In the last-named case, where the object is production for sale of produce, then ordinary breeds of fowls must be kept, for Bantams and their eggs—as stated before—have practically no market value, but for consumption in the households of allotment-holders I am inclined to think that these diminutive races might be preferable. It is, however, a matter to be tested. I have tried to obtain actual figures as to the cost of feeding and the results in egg- and flesh-production, but without success. Experiment is, therefore, desirable.

There is one direction in which Bantams may be very valuable—namely, the production of small birds similar to milk chickens, or *petits poussins*, or squab broilers, for which there is a growing trade. Possibly, if quantities were available, a sale could be created for birds weighing from 8oz. to 16oz. These would necessarily be older than the milk chickens, so as to secure the size required, but the flesh would be fuller and richer. I take it that by selection of the right breeds these could be produced in ten to twelve weeks from the time of hatching. Whether it would be profitable remains to be seen. There are, however, great possibilities in it. Perhaps some day we shall see places where hundreds of breeding Bantams are kept and thousands of chickens hatched every year. That is not at present in sight, and I should be sorry to see anyone go into it without further inquiry. If a wealthy pioneer would come forward, willing to test the scheme, then he would be better able to form a judgment.

As to the class of Bantam most highly developed in utility qualities, we have everything to learn. The Belgians consider that the Barbu Nain d'Anvers (Antwerp Bearded Bantam) conforms best of all to these requirements, and from such evidence as is obtainable it is an excellent layer, tame and hardy, thriving well under restricted conditions. Some of the other races of Bantams found in Belgium are being bred chiefly for exhibition, under which productiveness is likely to be checked rather than encouraged. During the Show season the owner does not want the hens to be laying. I believe that some of our English Bantams and Game Bantams are excellent layers, and a few I know are good in flesh properties. In the Variety Bantams there are greater differences. Some are purely ornamental, a few very abnormal in characteristics, and others so finely bred that they are not likely to be of much value, but enough remain for experiment. And for practical purposes we do not want coloura-

tion and markings of feathers of an extreme type. That the tendency would be to enlarge somewhat the size of body can scarcely be doubted, whereas as a rule exhibitors desire specimens as small as possible. Birds of 11oz. and 12oz. are too small, and 16oz. to 24oz. would be a preferable weight, for which reason many of the present breeds would be ruled out. If there were any definite increase in the keeping of Bantams on a utility basis, it is essential that data as to cost of feeding and productiveness should be obtained. Might not we have a Laying Competition for Bantams alone? That would be a novelty, but of great interest. The clubs concerned might do well to undertake such a task. Conducted at either the London Zoological Gardens or the Crystal Palace for a year, the cost should not be great and it would prove an attractive feature.

As already mentioned, Bantams require a small amount of space either upon the ground or in the house. A piece of ground 8ft. by 3ft. would provide abundance of room for ten or twelve birds, provided the grass or earth were regularly swept and renewed occasionally. For that number a shed or box 3ft. square would be ample and afford space for scratching under cover. It need not be more than 3ft. high, and would be better if open-fronted. Thus on a back garden 30ft. by 9ft. eighty or a hundred Bantam hens could be kept. Where more land was available portable houses and runs, 9ft. by 3ft., should be used, moved about on the grass once or twice a week.

The Barbu Nain cult in Belgium has been fortunate in securing the support of wealthy devotees, who have given play to their desire to carry out operations on a princely scale. One of these is M. A. Van Gelder, President of the Barbu Nain Club, whose charming place at the Château Zeecrabbe, Uccle, near Brussels, is well worth a visit. Behind the mansion are three ranges of houses, perfect in arrangement and most picturesque, as the ground is beautifully laid out. With the gardens in front, with trees and shrubs for shelter, the birds have every advantage. The houses are well built. At the back is a passage way, next to which are the roosting places, half open so that there is an abundance of fresh air; then a small covered run, and finally an open run. One of the houses includes a large exhibition room. My visit was paid in November, but during the spring and summer this must be a beautiful place. M. Van Gelder first took up the Antwerp Bantam, but has originated what is known as the Uccle Bantam. The former is bearded but clean-legged, whereas the latter is bearded and booted. For years he has been

engaged in the production of new varieties with remarkable success. Here are to be found both races in many colours. Of the Antwerps are millefleurs (thousand flowers), blacks, whites, cuckoo, mottled, and quails, the last-named wonderful, and with a combination of colour not met with in any other class of poultry. Of the Uccles are millefleurs, porcelaines, blacks, whites, and ermines, the last-named in course of formation. The porcelaines are a tribute to the breeder's art, and have a delicacy of colour I have never met with before. To see these and the millefleurs in

Malines, and the Field of Waterloo can be seen, is well carried out, right to the room in the dwelling-house representative of an old Dutch inn. The houses and runs are similar in arrangement to those already described. M. Pauwels, who is a Past-President of the Barbu Nain Club, makes a speciality of the breeding of Rumpless Fowls, on which he has been engaged for more than ten years. It is no easy task to get rid of the tails, but he is succeeding by persistent selection, not alone in Bantams, but also larger races. Here are Antwerp Bantams of all colours, Bruges Game,



BANTAM HOUSES AT CHÂTEAU ZEECRABBE.

[Copyright.]

the sunlight reveals a beauty of plumage realised in no other races of poultry. Millefleurs have been known for a long time in Belgium. The ground colour is golden-brown, on which are black spangles laced with white. In the porcelaines, which originated in Germany, the ground colour is silver, on which are bright blue spangles with white lacing. For softness of tone this variety is unequalled.

What is lacking in beauty of position of the establishment of M. Robert Pauwels, at Everberg, near Cortenberg, is compensated for by the wonderful arrangement of buildings and gardens, which are laid out in a marvellous manner, shown in some of the accompanying illustrations. Everything on the property, which is on high ground whence Brussels, Antwerp,

Golden Malines, Rose-combed Blacks, and Frizzled Bantams, all more or less denuded of their caudal appendages, and in addition thereto are some excellent red and speckled Orloffs. If, as suggested, tail-less fowls grow faster than those with tails, that is the justification, otherwise it is merely a matter of fancy, and doubtful at that save as proof of power on the part of the breeder. Everberg is a wonderful place equally as to its arrangements, the houses and gardens, and the stock kept. In addition to poultry, M. Pauwels breeds dogs, pigeons, rabbits, and cage birds. It is unique in every way. Perhaps it may be wondered what these two establishments have to do with Bantams as utility stock. I have asked myself the same question. As yet the answer is not forthcoming.

THE FOUR LAYING COMPETITIONS.

By J. W. HURST.

THE four laying competitions of the past season, concluding with that which covered a period of six months at Street, in Somerset, have provided several fresh proofs of the general utility of these tests to those who are engaged in egg-production—and this as regards their failures as well as their successes. That the successes have far outweighed the failures is not the least pleasing fact regarding the 1909-10 contests, but the educational value of the latter must not be minimised. We learn by our failures, which should be made the stepping-stones to future successes.

There is one matter which at the outset demands some special consideration, inasmuch as it concerns the policy of the Utility Poultry Club, the parent society and pioneer of these competitions, and that is the question of the advisability of providing a permanent home or homes for the conduct of laying tests. Those who favour this suggestion contend that the continual change in management and location lessens their value, and renders the results almost valueless for the purposes of comparison with previous records. There is much to be said for this argument, which receives some support from the history of competitions, here and elsewhere, that have been conducted in accordance with the two methods. The suggestion may at least be commended to the careful consideration of those who are more immediately concerned, and they may be reminded that their work has now acquired a very wide importance, and that their responsibility is not, in fact, confined to members of their own body. Practically the whole Press takes cognisance of these things, and the extent of the Club's influence is incalculable. It is, therefore, incumbent upon those in authority to do all that may be calculated to add to the practical value of the competitions which they originated, and although there may be two sides to the question of permanent testing sites and the continuity of management, the pros and cons should be carefully weighed.

There is also the further question of period, and increasing experience adds to the number of those who consider that four months is quite inadequate to constitute a reliable test of laying capabilities. The time would appear to be ripe for the reconsideration of this point, as well as the possible advantage of increasing the number of birds in a pen to six. It is to be

hoped that expense will not stand in the way of the contemplated twelve months' competition, and that a sufficient grant will be forthcoming to relieve the Club of this incubus.

As a twin contest at Ilkley and Rye, the arrangements of the Utility Poultry Club were unfortunately a failure, and the competition at Ilkley concluded with an expression of regret and an offer to refund a proportion of the entrance fees. If it is impossible to say nothing but good, it is at least possible—and perhaps preferable—to receive this closing of the incident in silence. It has been a lesson. Relative to Rye, there are several points to which attention may be drawn with advantage, but perhaps the most outstanding one is that of condition, concerning which the manager's remarks are pertinent. Mr. J. N. Leigh says: "The selection of the birds is an all-important matter in these contests, and in order to win they should be in such a condition as to start laying at the commencement." In this instance 38 birds of a total of 120 moulted during the first month. Turning to the report of Mr. C. G. Skipper, the manager of the Northern Utility Poultry Society's competition at Burnley, we read that in his opinion "there is much to be learnt yet in selecting birds to take part in a laying test." Moreover, some of the remarks made by Mr. William Reynolds, in charge of the six months' competition at Street, tend to confirm the foregoing. There is, therefore, a general agreement among those best qualified to judge regarding the primary necessity of giving more attention to condition in this connection. The influences affecting moulting in pullets require to be more fully understood, and might very usefully be made the subject of careful and particular investigation; and it is a notable fact that whilst many backward birds are sent to compete, a considerable number are too forward. The point to be determined is how best to induce the condition that is most favourable to the *starting* of laying at the commencement. The arguments relative to breed and strain need no fresh insistence, the modern teaching being enforced by the results of each succeeding season, but the increasing and additional value of these laying tests would appear to be rather relative to the many details of management, of which the procuring of a suitable condition at a desirable period is not the least important.

In his first interim report Mr. Reynolds recorded the fact that broodiness had interfered

with 17 pens of the 43 in competition; the Burnley contest also suffered from the same cause, but at Rye the number of broodies was small, considering that, with two exceptions, all the pens were composed of sitting breeds. In the latter case the practical immunity is in some measure attributed by Mr. Leigh to the removal of any bird found upon a nest at night, which is a point worth noting, inasmuch as it would seem to have served to check the inclination. It is, at any rate, one of those suggestions arising out of these tests that may prove to be of general practical value, and which combine to make that increasing usefulness of laying competitions that has been indicated.

The question of the advisability of using trap-nests has arisen, two opposite opinions having been expressed by two of the managers concerned. The recent competition at Burnley is the first under the Northern Society in which trap-nests have been used, and in his report Mr. Skipper eulogises them, despite his discovery of the fact that they take up "a tremendous amount of time." He makes a point, moreover, of his experience that the birds soon adapt themselves to the conditions and the necessary handling. In contradistinction to this assertion, we find Mr. Leigh questioning whether their use is really advisable, not only on account of the inevitably great amount of work involved in attending to them, but more especially on account of what he describes as "the deterrent effect upon the laying of *some*

birds." In the case of "*some* birds" (the italics are mine) this must undoubtedly have an injurious effect upon the records, and the suggestion is necessary that so long as trap-nests are used competitors should avoid sending very wild or excitable birds.

Any comparison in detail of the totals, averages, and individual records, as between concurrent competitions conducted in widely-separated localities and under conditions of situation, penning, and general management, that vary so considerably, would be of very little practical value. The only actual point of agreement was the common exposure to weather conditions that were for the most part unfavourable to egg-production. A brief comparison relative to feeding is not uninteresting, and may fittingly conclude these very inadequate notes upon a large and complex subject, the full treatment of which would be lengthy and tedious. The dietary adopted at Burnley calls for remark on account of its rather unusual character as a supposed object-lesson, in that it omitted the feeding of *warm* morning mash, and excluded oats from the meal and grain rations; whilst of corn "a plentiful supply was given, so that birds could choose their own particular sort"—the choice being apparently limited to barley, wheat, and maize. At both Street and Rye oats were used—ground and whole—in conjunction with other meals and grains, the fullest use of this grain being at the Southern competition.

THE IMPORTANCE OF THE MINERAL MATTER IN THE FOOD OF POULTRY.

By HERBERT INGLE, B.Sc., F.R.S.S.A., F.I.C.

THE amount of composition of the ash of various vegetable products has been determined by many chemists. As a rule, however, the object in view has been to ascertain the demands which the crops make upon the soil, and thus to afford information as to the manurial requirements of the crops, or possibly the rate of impoverishment of the soil by the growth of the crops. But another aspect—that of the suitability or otherwise of the vegetable products to satisfy the demands for mineral matter of the animals fed upon them—has, until recently, been little studied.

Much work has been done in connection with feeding-stuffs, but in nearly all cases it has been their organic constituents which have been regarded as of importance, while beyond re-

cognising that foods must supply a sufficient amount of "ash constituents," or "bone-forming material" to the animal, little attention has been paid to the amount and scarcely any to the composition of their inorganic components. Certain fundamental facts with reference to inorganic matter in food have long been recognised—*e.g.*, that domestic animals must receive a certain amount of chlorides with their food; if deficient in the natural food this is generally supplied in the form of sodium chloride, as common salt or rock salt; also that domestic poultry requires supplies of carbonate of lime for the formation of egg-shells.

These matters are so generally believed that it is unnecessary to do more than mention them. But there are many other inorganic elements

and compounds which go to form essential tissues and secretions of animals, and it is rare to find attention directed to them, or any consideration paid to the question whether they are present in the dietaries of animals or not. The amount of these substances required by animals is often very small, and is always so when compared with the quantities of albuminoids, fats, and carbohydrates required. Many of these elements, moreover, are present in the majority of ordinary feeding-stuffs, so that when the diet is sufficiently varied in character, animals as a rule obtain all they require. But it is otherwise when the rations are restricted to only one or two kinds of feeding-stuffs. In such cases it undoubtedly often happens that one or more mineral substances may be either lacking altogether or present in quite insufficient quantities.

The matter is further complicated by the fact that, in several cases, at least, it is important, not only that certain mineral elements be present, but that the ratio between two of them shall approximate to a certain value. To take a well-marked case—lime and phosphoric acid—the writer has brought evidence to prove that with horses, mules, and donkeys it is important that the amount of phosphorus pentoxide does not greatly exceed that of the lime present in the diet, or otherwise malnutrition of the bones results.* This disproportion does, indeed, exist in the usual rations supplied to these animals in South Africa—viz., oat-hay and maize—and to this fact the prevalence of the bone disease—osteoporosis—is probably due.

Now, to young plants, supplies of phosphoric acid are apparently of more importance than those of lime, and consequently the seeds of almost all plants contain more of the former than of the latter. The following table will illustrate this :

PERCENTAGE AMOUNTS PRESENT IN—
Ratio.

	Phosphorus pentoxide.	Lime.	Phosphorus pentoxide.	Lime.
Wheat ...	0·82	0·06	1 :	·073
Oats ...	0·55	0·10	1 :	·181
Barley ...	0·72	0·05	1 :	·070
Maize ...	0·55	0·03	1 :	·055
Beans ...	1·16	0·15	1 :	·129
Peas ...	0·88	0·12	1 :	·136
Rice ...	0·17	0·01	1 :	·059
Paddy ...	3·26	0·35	1 :	·107
Millet ...	·91	0·04	1 :	·044
Buckwheat	·44	0·03	1 :	·068
Rape Seed	1·64	0·52	1 :	·315
Flax Seed	1·30	0·27	1 :	·207
Hemp Seed	1·75	1·13	1 :	·644
Poppy Seed	1·64	1·85	1 :	1·129
Soy Bean	0·81	0·02	1 :	·028

The above figures (Wolff's analysis) show that in cereal grains, in particular, the amount

of phosphorus pentoxide present far exceeds that of lime, and that in all the seeds mentioned (except poppy seed) the amount of phosphorus pentoxide is greater than that of lime. On the other hand, in the leaves and stems of plants the lime usually equals or exceeds the phosphorus pentoxide, and in those of the *leguminosæ* largely predominates. Thus in the following plants, analysed in the fresh, green state, Wolff found :

	Phosphorus pentoxide.	Lime.	Ratio. Phosphorus pentoxide.	Lime.
Meadow Grass...	·15	·27	1 :	1·80
Rye Grass ...	·17	·16	1 :	·94
Red Clover ...	·13	·46	1 :	3·53
White Clover ...	·20	·44	1 :	2·20
Alsike Clover ...	·10	·32	1 :	3·20
Lucerne...	·15	·85	1 :	5·65
Sainfoin ...	·12	·37	1 :	3·08
Kidney Vetch ...	·09	·85	1 :	9·45
Green Vetches...	·20	·41	1 :	2·05
Green Peas ...	·18	·39	1 :	2·16
Green Rape ...	·12	·31	1 :	2·58
Turnip Tops ...	·13	·45	1 :	3·46
Carrot Tops ...	·12	·86	1 :	7·15
Cabbage Heads	·20	·19	1 :	·95

While in the following manufactured products and refuse were :

	Phosphorus pentoxide.	Lime.	Ratio. Phosphorus pentoxide.	Lime.
Fine Wheat Flour	·21	·01	1 :	·048
Wheat Bran ...	2·88	·26	1 :	·090
Barley Flour ...	·95	·06	1 :	·068
Maize Meal ...	·43	·06	1 :	·139
Potato Skins ...	·23	·64	1 :	2·78
Brewers' Grains ...	·46	·14	1 :	·304

It will be seen that in a diet composed entirely of cereal grain or its products there is an enormous extent of phosphorus pentoxide over lime, and such a diet should be very prone to induce malnutrition and disease of bone.

With poultry, provided, as they usually are, with some form of carbonate of lime, the ratio of phosphorus pentoxide to lime in the food supply is perhaps not of so much importance as with other farm animals, but with growing birds, when the need for abundant bone-forming materials is great, and where there is usually no recognition of the necessity of a supply of calcium carbonate, a diet composed mainly of cereals would be very liable to interfere seriously with bone nutrition if the birds had no access to a grass run.

Some of these necessary inorganic materials are truly *formative*—i.e., are used to actually build up the tissues of the body—while others are mainly employed in the production of various secretions essential for the carrying on of digestion and other physiological processes in the body. In both growing and adult animals a continuous supply of the inorganic materials necessary for the production of the secretions is indispensable for the maintenance of health.

* V. papers on Osteoporosis in Animals—"Jour. Comp. Pathology and Therapeutics," 1907. The Ash Constituents of Foods—"Jour. Agric. Science," 1909.

An account of the actual inorganic elements required by animals cannot appropriately be given here, but it may be pointed out that some of them, which are apparently essential constituents of certain animal secretions and tissues, are by no means widely distributed or abundant in plants. Fluorine (found in the bones and teeth of animals), iodine (in the thyroid secretion), iron (in the blood, &c.), chlorine (in the gastric juice, and found also in almost all parts of the body), and calcium (found largely in the bones, teeth, egg-shells, &c.) are of much more importance to animals than to plants; while, on the other hand, plants apparently are more

growing chickens.[†] Two lots of White Wyandotte chickens, besides others, were fed from birth in exactly the same way, excepting that one pen received a small quantity of the "mineral food," while the other did not. At eleven weeks old the nine chicks in the former pen weighed 18lb., or an average of 28oz., the twelve chicks in the latter pen weighed 17lb. 2oz., or an average of 20oz. Remembering that the chicks were all fed in the manner usual at Theale—*i.e.*, doubtless upon a varied diet—these results afford strong evidence of the usefulness of the "mineral food," for had the diet been composed of only one or two items,

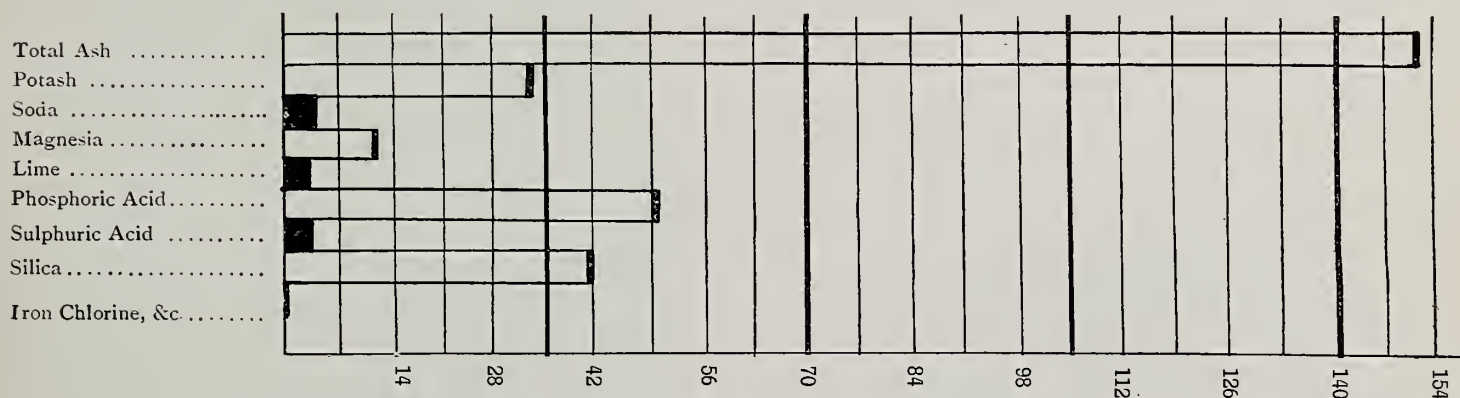


DIAGRAM SHOWING THE AMOUNTS IN GRAINS PER POUND OF THE PRINCIPAL ASH CONSTITUENTS PRESENT IN BARLEY GRAIN OF THE AVERAGE COMPOSITION.

dependent upon and require relatively more phosphoric acid and potassium. The main constituents of the ash of barley are shown in the above diagram.

As is well known, poultry in South Africa suffer a heavy mortality; and it was in response to requests for advice from poultry-keepers that the writer's attention was directed to the subject. In consequence, he designed a preparation intended to supply artificially the mineral matter probably lacking in the usual diet of poultry, and this "mineral food," administered in small quantity with the usual ration, has proved of great value in maintaining the health of poultry in South Africa. In England, where poultry have a greater variety of food, and usually access to a grass run, the need for the mineral matter is perhaps not so great, but whenever the food used is lacking in variety, and the birds have no opportunity of supplementing their artificial food by picking up plants, insects, &c., in a grass run, it must often happen that health suffers, either from lack of some essential mineral constituents or from the unsuitable relative proportions in which some of these occur in the food.

Mr. Edward Brown, F.L.S., of the late College Poultry Farm, Theale, has recently tried experiments with the writer's preparation and has obtained some significant results with

as is often the case with chickens in confinement, there can be little doubt that without this addition the growth would have been less than it was and the advantage correspondingly greater. Trials of laying hens, *with a grass run*, carried out by Mr. Edward Brown showed little or no effect so far as number or weight of eggs produced was concerned, but the birds receiving the mineral food came on to lay more quickly, but whether this result was due to the mineral food or to other causes cannot be stated. In other trials, carried out by Mr. F. Parton, Poultry Expert of the Leeds University, it was noticed that with pullets the mineral food induced the growth of larger combs, and that with Leghorns the combs of the pullets receiving the preparation grew perfectly erect instead of pendulous, as is usually the case.

The writer is fully convinced from a long and careful study of many feeding trials that much of the obscurity which at present envelops the subject, especially when regarded, as it practically always is, purely from the point of view of the organic constituents supplied in the food, will be removed when more consideration is given to the amount and nature of the mineral matter supplied.

[†] "Journal of the Board of Agriculture," November, 1909.

WHO'S WHO IN THE POULTRY WORLD.

THE MISSES MAY & J. MACQUILLAN

AMONG Irish exhibitors and all-round judges of poultry, perhaps none are better known than Miss May Macquillan and her sister, of Great Clonard, Wexford, the former of whom is the RECORD's special correspondent for the midland district of Ireland, while both she and her sister act jointly as Irish correspondents and show reporters for *Poultry*. Miss Macquillan began her poultry career as a child, and she has kept most breeds at one time or another. Long since, however, she devoted most of her attention to the Barred Plymouth Rock, which she has bred and exhibited very successfully for a number of years. At her yards at Great Clonard she keeps about fifty stock birds, and each year she rears between 500 and 600 chickens, the pick of which are disposed of in Ireland and England for stock and exhibition purposes. Miss J. Macquillan, who also resides at Great Clonard, keeps Cayuga ducks and Partridge Wyandottes. With the Wyandottes she

Barred Plymouth Rock is also a popular breed in Ireland, owing to the size of the birds and the fact that they thrive on almost any soil.

Miss May Macquillan has acted as poultry judge



MISS MACQUILLAN.

started about four years ago, getting together a pen of pullet breeders. This strain has been kept pure, and the results of careful mating are now beginning to show, since her birds were successfully exhibited at several shows last year.

For utility purposes the Partridge Wyandotte has been found an excellent variety. The birds are very hardy and thrive well in a damp situation, while they are very serviceable for a good supply of winter eggs and early chickens. The



MISS J. MACQUILLAN.

on a number of occasions, and for the past three or four years has averaged about ten shows yearly. Her sister also officiates as a poultry judge.

MR. J. STEPHEN HICKS.

WHATEVER else may be said about the last Boer War, we owe to that event in our history the circumstance that Mr. J. Stephen Hicks was lost to the Civil Service and gained to the Poultry Fancy! Fanciers become so from various causes. Some are born to the pursuit, others drift into it, impelled thereto by considerations of health, environment, or some equally familiar factor; to Mr. Hicks belongs, perhaps, the unique distinction of having become a fancier because he had been a Volunteer. This suggested connection between patriotism and poultry may be briefly explained. On leaving his *alma mater*, otherwise Merchant Taylors' School, about eleven years ago, Mr. Hicks began to "cram" for the Civil Service Examination. At the same time,

however, he joined a Volunteer corps, and when, about half-way through his studies, that corps appealed for men to go on active service, Mr. Hicks responded. He spent the next eighteen months in South Africa, and on his return found that it was too late to compete in the Civil Service Examination with any hope of success. At this



MR. J. STEPHEN HICKS.

psychological moment he encountered an old friend, Mr. W. St. John Oswell, and in the year 1902 entered into partnership with him at the poultry farm, Bottis-ham House, near Cambridge. This partnership did not last long, as the following year Mr. Oswell accepted a tempting appointment as Commissioner in West Africa, and left Mr. Hicks to carry on business by himself. The rest of his story up to date is soon told. While he handled many birds, he specialised in White Wyandottes, and soon achieved a signal success in breeding, selling, and exhibiting birds of fine type and colour. As Hon. Secretary and Treasurer of the White Wyandotte Club, he has done much to popularise the Club and the variety. The Club "Year-Book," referred to in the April issue is quite a triumph in its way—thanks to Mr. Hicks's literary talent and sense of the value of high-class illustrations to a publication of this kind.

MR. EDWARD A. CASS.

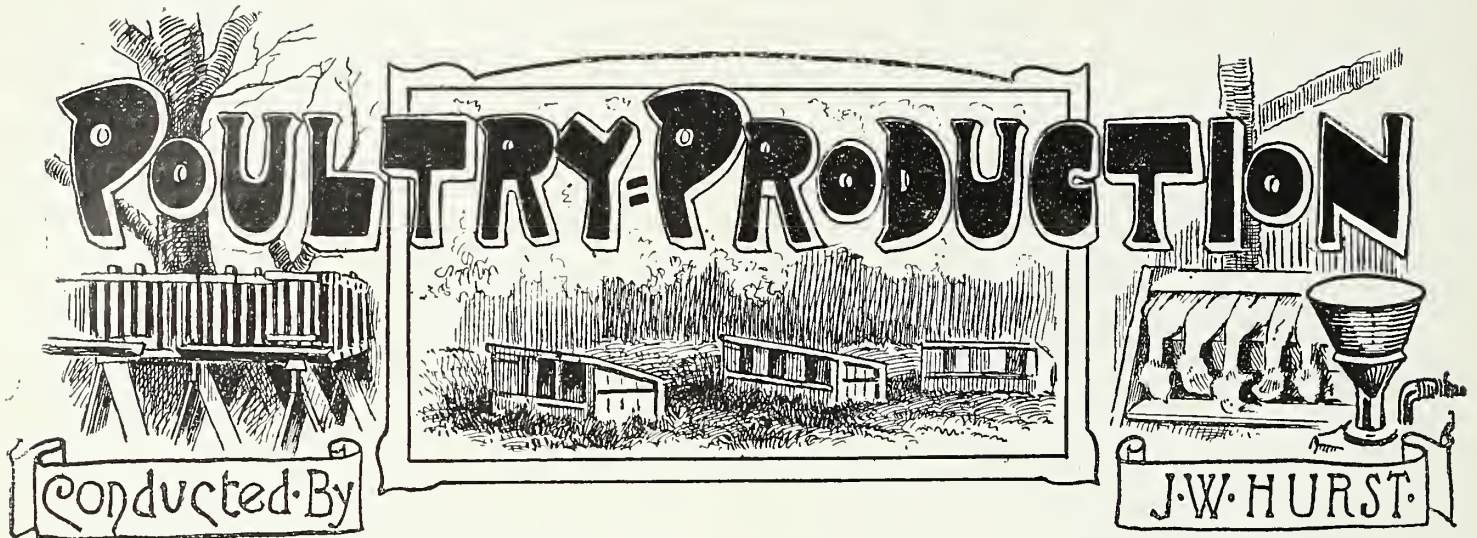
IT was about ten years ago that Mr. Cass returned from the States, where he had lived for the previous fifteen years, and started poultry-keeping with the single idea of selling day-old chicks. His stock at that time consisted of a few ordinary Buff Orpingtons. As the chicks were not always got rid of, he ran some of them on, and in 1901 ventured a pullet at the "Dairy" and got a "commended" card. This success inspired a desire to see what a Buff Orpington ought to look like, and he visited the show, with the result, as he tells us, that he fell in love with the breed and formed the ambition to become a successful breeder of them. He began by obtaining some birds from Mr. R. R. Whitfield and the late W. Cook, and keeping type steadily in view, and emphasising sound under-colour, soon established a strain with which he had some good success in the show pen against the older breeders.

Mr. Cass has never bought a bird to exhibit, but



MR. EDWARD A. CASS.

has bred all his own show specimens, for the sheer joy of seeing the results of a season's mating come out "on top." Necessarily he considers the Buff Orpington the finest of all breeds, but he also thinks the life of the poultry-keeper to be as near the ideal as one can hope for, and wonders in his enthusiasm that more don't join in. He resides at Candlesby House, Burgh, Lincolnshire.



The Season.

The word "season" looms large in the vocabulary of the producer, whose various descriptions of produce have their different special seasons; but there is only one period of the year which all alike designate and acknowledge as *the* season. It commences with the month of May. It should mark the consummation of the hopes that have encouraged rearing during the difficult months; difficult, that is, when compared with the present most natural time for growth and development. During this and next month relatively high prices are looked for by producers with some degree of certainty, arguing from past experience and the knowledge of what production for the season really means. Nevertheless the anticipations of the most expert producers are not always justified in the results, so that the inexperienced should not be surprised at possible disappointments—probably due, in their case, to some fault of preparation. Under existing conditions isolated individual producers are often without the necessary facilities for marketing in London, and in such circumstances—unless there is an available outlet for fattened fowls—it is usually more satisfactory to supply some near-at-hand provincial demand for unfattened or trough-fed birds. Trough-fattening can be more or less successfully undertaken by any chicken-raising farmer, although it often happens that even this final preparation is unprofitable in relation to the highest values locally obtainable. In any case, the demand during the season is for young birds, and if they are to be killed off the run, they must be of a breed and strain carrying flesh enough to give a plump-dressed appearance. The importance of appearance, from the salesman's point of view, can scarcely be over-estimated; and it is only too true that some of the best fowls make relatively poor prices on account of lack of skilful manipulation. The season not only demands the tenderness of the young birds and the condition consequent upon good feeding, but an attractive appearance is essential.

Separation of Young Stock.

In any extensive rearing operations it is essential that the available space be adequate to the

needs of the different descriptions of fowls at their various stages of progress. The limitations of the present season, consequent upon the shutting off of meadows for mowing, should have been considered well in advance of rearing; but whether the preliminary arrangements have or have not been suitable, producers are now confronted with the increasing requirements of the running birds and the future needs of continued incubation. There are, of course, extremes of management and mismanagement, the heterogeneous collection of the old farm-yard manner of rearing and the expensive decorative mode of planning adopted by some poultry architects both being opposed to the economy of industrial production. For the ordinary purposes of farm production, any great outlay for the penning and separation of an extensive classification is as unnecessary as it is unprofitable—to say nothing of its general incompatibility with the common operations of cultivating the land. On the other hand, it is quite impossible to secure the highest results from any one description if all sorts, and all ages, are run together and indiscriminately fed. The struggle for a bare existence that is thus imposed upon the immature is far too keen for thrift. Good management can, however, overcome many apparently insuperable difficulties, and if the exigencies of the present season prevent any very wide dispersion, the farmer's fowls may, at any rate in most circumstances, be divided by the existing more or less natural divisions of hedges, shaws, streams, and buildings. The separation should at least ensure that the different flocks are out of sight of one another, and, if possible, they should be out of hearing; but if the latter condition is not possible the feeding should be punctual, and unaccompanied by any loud calling. The chief object of such separation is that all may receive food of a character suited to their different needs, and that the young may not have to compete with the older for a necessary quantity. Moreover, considerations of growth and development necessitate the separation of the sexes.

The Preservation of Eggs.

We are well into the egg-preserving season, and producers should sufficiently prepare for their possible requirements in this department before the

weather becomes unfavourable and the opportunity of the increased production has gone by. It is obvious that the extent of such operations must be largely influenced by individual circumstances, and more especially by the values current at the time of production. In this connection it is noteworthy that Mr. W. Reynolds has informed us—as the result of his considerable experience at the Street dépôt—that pickling pays with eggs costing not more than eightpence per dozen, and that upon that basis preservation is not only profitable of itself, but that it prevents the probable loss involved in adding to a possibly over-supplied market. This is, of course, relative to seasons of plenty in normal years, and it is, moreover, a question as to how far it is profitable for the individual producer to engage in any elaborate attempt at preservation; but there is an evident opportunity for the producer to share the gain consequent upon co-operative methods of egg-preservation. In any case it is the individual who is concerned in the actual production, and it

THE MIDDLESEX DUCK PLANT.

By J. W. HURST.

HE must be but a poor-spirited aspirant to fortune-cum-poultry who has not gazed longingly at illustrations of American “plants,” and dreamed dreams of the revolution of British methods. Whether the dreamer be wise or foolish is not the question with which I am at the moment concerned—which is one of fact. It is nothing less than the materialisation in this country of the vision of our enthusiastic novice, and if he will take train to Stanmore, he may see a complete American duck plant in full process of production. He may see the eggs put into the incubators at one end of a thousand feet of buildings, and the finished produce taken from the cold store at the other end for transference to market by a special motor service.

Until nearly the end of July last year the site of this self-contained producing establishment was the



THE MAIN BUILDINGS AT STANMORE.

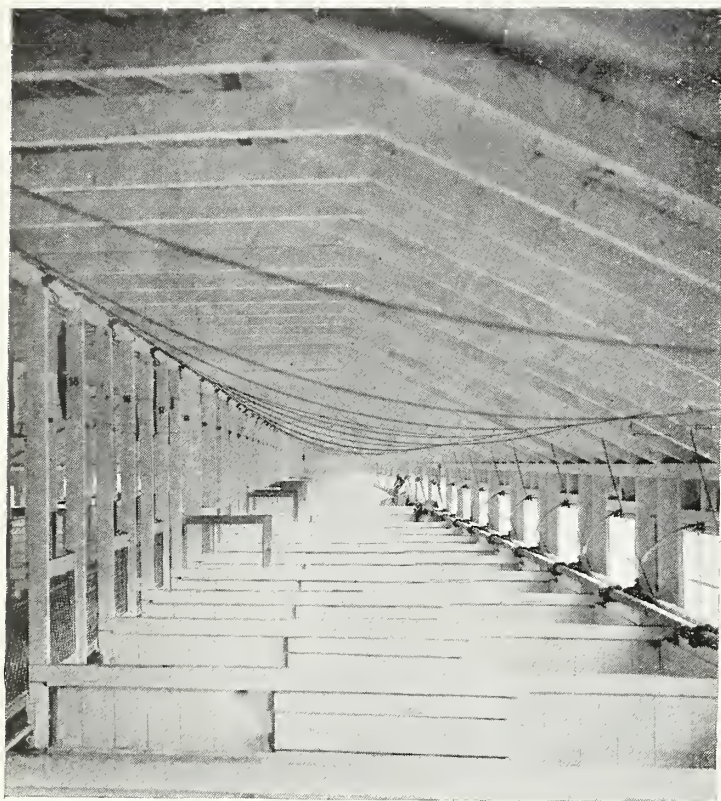
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is perhaps necessary to remind such that they cannot safely rely too far upon the efficacy of water-glass or any other commonly-used preservative. If pickled eggs are to be in the best possible condition in, say, six months' time—the longest average period during which it is economically advantageous to preserve them—they must be in the best possible condition at the commencement of the process. The most suitable, and the most likely to prove satisfactory, are those laid by hens having the freedom of a large grass range, being fed on sound grain meanwhile. The eggs should preferably be infertile, and it need hardly be added that absolute freshness is essential. It may, perhaps, be mentioned that there is no important alteration in the composition of suitably produced eggs that are preserved for any period up to a year, and half that time is ordinarily sufficient.

uncut sward of Harrow Weald, but such was the characteristic hustle that followed the lifting of the first turf on the 20th of that month, and so closely confined were the efforts to deeds rather than words, that most people were surprised when the first consignments of the produce arrived in the Central Markets. The marketing of the goods was practically the first intimation of the new enterprise, and we have it upon the authority of Mr. Verney Carter that the bulk of the ducklings received at Smithfield early in March were the output of the Middlesex Farm. The duckling with the blue ribbon, and the red seal of its guaranteed age of nine weeks, effected a surprise and captured the position.

Within a week of the receipt of the first consignment at Smithfield, I was enabled by the proprietor—Mr. L. B. Purdey—to visit the establishment, that gentleman most courteously affording the

fullest facilities for inspection, and the acquisition of information. Mr. Purdey, who, by the way, is the son of the well-known gun maker, the late Mr. James Purdey, and therefore an Englishman, has travelled extensively, and gained his preliminary



BROODING COMPARTMENTS. [Copyright.]

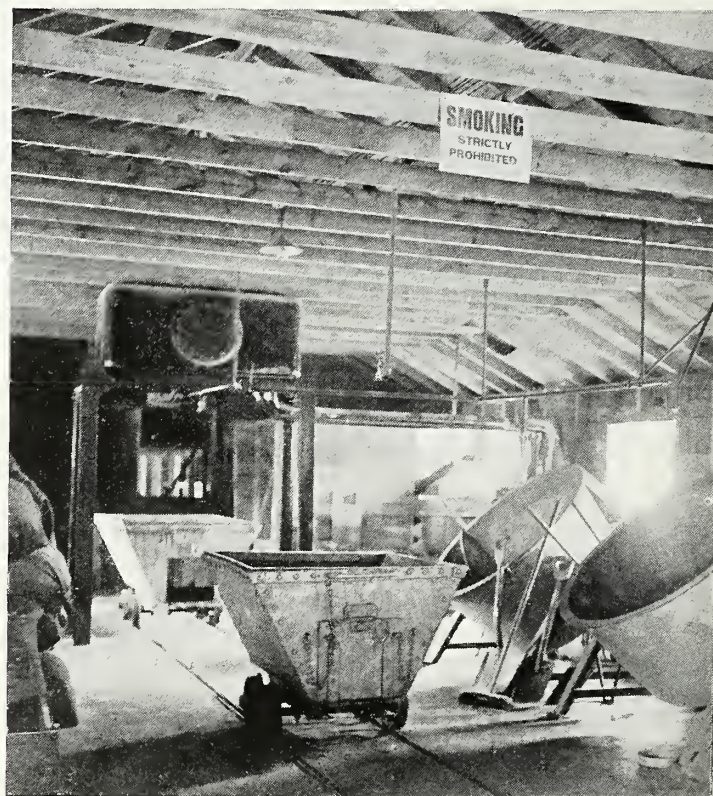
experience of duck raising in the United States. He is sufficiently convinced of the soundness of the methods he has adopted and imported to support his opinion to the extent of some £12,000 capital invested in the enterprise, and the completeness of the reproduction of the American model is well exemplified in the importation of the initial breeding stock from the States. Mr. Purdey pins his faith primarily to the American Pekin, and received his birds direct last autumn; but in addition to the eggs produced by the round thousand ducks penned on the premises, his agents have bought large quantities of Aylesbury eggs, and have contracted for a supply approximating to 120,000. There is an incubator capacity of 20,000 eggs, and it is anticipated that the total available supply of eggs—both home produced and purchased—will amount to quite 200,000.

The area of occupation is eleven acres, and the penning of the thousand stock birds has been ingeniously arranged to take advantage of a natural stream, each pen being provided with a cemented pond, the levels following the natural fall of the ground, and the water continually flowing throughout the series. There is also a system of filtration. The incubator cellar, with seventy machines in operation, is of itself a sight worth a journey to see. The incubators are all of one make—namely, the Cyphers, which are constructed upon the hot-air principle; but it may be noted, in passing, that the eggs are all sprayed when the trays are removed for airing.

The long range of brooding compartments has been

planned in accordance with the general design, which aims at the production of a marketable size and condition within or about nine weeks, the birds marketed being guaranteed as ducklings in more than name. The scheme therefore provides for the daily progress of the birds in batches from pen to pen, the earlier compartments being heated upon a graduated plan, and the later divisions without supplied heat, but with access to outer gravel runs. It is as interesting as it is curious to walk along the central gangway and note the rate of daily growth in orderly succession, from the nursery of the newly-hatched to the killing-room. In the latter I found several pluckers busily at work and the presses rapidly filling.

The method of preparation for market follows, in the final stages, the same general lines adopted by our commercial producers; but it is the addition of the encircling blue ribbon and the red seal that gives the distinguishing appearance to the produce of this establishment. It is a 'cute finishing touch that should serve to enhance the value in the eyes of the purchaser, this point of the importance of appearance being too commonly neglected by English marketers. Mr. Purdey has, moreover, fully appreciated the advantages of a cold store and the use of the motor for marketing. The method adopted for supplying the London market obviates any necessity for packing, with its very obvious drawbacks. The finished birds are placed in large wooden trays, which may be placed upon the shelves in the cold store, and transferred to the motor van—specially constructed for their reception—and thence to Smithfield without any further handling or disarrangement. The van is capable of transferring 500 ducklings from



FOOD TROLLEYS AT THE TERMINUS.

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the cold store to the market, and ready for display by the salesman, within about fifty minutes and at a fractional cost for carriage. It is estimated that

the season's output will, allowing for all contingencies, approximate to 100,000 birds marketed in daily consignments. So thoroughly equipped is this establishment with all that makes for economy in production that it is covered with a network of rails, connecting a system of tramways, by means of which the food is carried throughout the brooding-houses

last few years—last year the price reaching 3d. each in several parts of the country. In my own experience I have known one man get 50 per cent. better results than another, using the same food on similar birds, kept under like conditions. As "feeding for eggs," then, depends so largely upon, and is so closely associated with, housing and management, it



NURSERIES.

[Copyright.]

and along the breeding-pens. There is, moreover, the necessary plant for the generation of electricity, by which the whole may be lighted in any part as required. Finally, Mr. Purdey is as enthusiastic and alive as his plant shows him to be ingenious; and if pluck commands success, it should be assured to this introducer of American methods into the Old Country.

FEEDING FOR EGGS.

By RALPH DIXON OF THE WORCESTERSHIRE
POULTRY-FARM.

ALTHOUGH it is of great importance to have a suitable ration for egg-production, the actual results depend quite as much upon the conditions under which birds are kept and the management as upon the ration. The most difficult time to get new-laid eggs is the latter half of October and the first half of November, and as it is right against nature for birds to produce eggs then, they can only be obtained by the exercise of great care and observation. If this were not so, they would not become dearer each autumn, as they have done the

is perhaps not out of place to touch briefly upon these points. The first of these conditions is proper housing accommodation. It was the fashion a few years ago to run down what are known as "scratching-sheds"; but from an extended trial of various systems I am still of opinion that scratching-sheds, if properly made, give better results than any other system, unless it be that of running birds in small lots at free range on a farm. If the scratching-sheds are draught-proof, and the front mainly or entirely wire netting, and the birds are looked after with a reasonable amount of intelligence, they can hardly fail to do well in them. Assuming, then, that pullets of the right age and breeding have been selected, and proper housing accommodation provided, the next thing is the ration. For continued egg-production meat in some form or other is necessary, and the best form in which to give it is that known as "green bone." Green bones are fresh bones from which the meat has been taken, and must not be cooked or salted. They are placed in a cutter which shreds them up, in which form they may be given either with the mash or by themselves. Green bone not only consists largely of the same elements as the egg, but it stimulates and strengthens the egg-producing organs. It should always, however, be given quite fresh—never stale—otherwise eggs will

be musty and the birds injured. A good mash may be made as follows:

- 6 parts fresh green bone.
- 6 " sharps.
- 3 " ground oats.
- 1 " wheat bran.

If the whole of this is well mixed together, practically no moisture other than that from the green bone will be required. The allowance per hen should be $1\frac{1}{2}$ oz. to 2 oz. daily, according to breed. It is a debatable point as to whether the mash should be fed in the morning or at night. Per-

birds are not kept in scratching-sheds, a rough shelter covered to the depth of 8 in. with straw litter or leaves, where they can have their hard corn, will pay for itself easily in one year in the enhanced health of the birds and greater egg-yield. It is, of course, necessary to provide clean water as well; a plentiful supply of green food, grit, oyster-shell, and ashes or charcoal are also beneficial. In winter, when green stuff is scarce and the grass runs become worn, sprouted oats are much appreciated. A simple way of sprouting oats is as follows: Take a shallow box about 4 in. to 6 in. deep,



BREEDING - PENS AND PONDS AT STANMORE.

[Copyright.]

sonally I believe it is best given at the afternoon feed, as it must be far more beneficial to the hen to be hard at work in scratching material on a cold frosty morning than to have a warm feed. The effect, in a short time, of a warm feed on a frosty morning is to make the birds loaf about and shiver, whereas if they are kept busy scratching, a good and healthy circulation is maintained all the day. A successful system of feeding laying stock on the scratching-shed system is as follows:

As soon as it is light in the morning, the birds have a hard corn feed consisting of two-thirds wheat and one-third cracked maize, which has been given them in the litter late the afternoon before. About 11 a.m. a small feed of oats is given again in the litter, which keeps the birds busy till afternoon. About 3 to 4 p.m. the soft feed mentioned above is given in troughs. An hour before sunset the feed of wheat and cracked maize, or, alternately, wheat and oats, is scattered in the litter, from which the birds can top up so that they can go to roost well filled and healthily tired, having had to work in eight inches of litter the best part of the day for their food. If

and bore a couple of holes in the bottom to allow the water to drain off. Then place oats in the box to the depth of not more than 1 in., and water thoroughly and evenly every day from ten to fourteen days, when sprouts will be 4 in. to 6 in. long. If available, a cool cellar is the best place to use. Another good substitute for green food for winter use is chopped clover sprinkled with boiling water and allowed to steam for half an hour.

The great danger with penned birds is over-feeding; but if birds are fed and housed in the manner here recommended, this danger is reduced to a minimum.

SOME FEEDING PROBLEMS.

V. ANIMAL NUTRITION: BODY FAT.

(Continued from page 375.)

THE fat in the body of an animal may originate from three sources:—from the fat in the food, from the carbohydrates, and the decomposition of

protein matter. It appears from the results that have been published in connection with experiments on animals that the fat fed in the food undergoes but little change when taken into the body. This not only applies to the fat usually found in feeding stuffs, but when fatty acids are given similar results are noticed. This is correct, speaking generally, but, as we will show later, the fat of the body is derived not only from the fat of the food, but also from the carbohydrates, and, again, from these two constituents in conjunction with the nitrogenous compounds.

A number of investigators, such as Lawes and Gilbert in 1852, and Liebig in 1842, have demonstrated that the fat of the body must be obtained from other sources than from the fat fed. This has been found to a marked degree in the case of pigs; the fat stored in the body of fattened pigs being considerably in excess of the fat given to them in their food. Although this view, when first made public, was not credited, the evidence that has accumulated in the course of years is so great that this question may now be considered settled. It has long been an established fact that fat may be formed by putrefactive processes from protein matter, either within or without the body, and the same result is brought about by oxidising agents. Under certain conditions this fat formation is very noticeable. In the case of phosphorus poisoning the muscles waste, and a peculiar waxy form of fat appears, and similar fat also forms on the organs of the body, but the same result is obtained, though to a less extent, under normal conditions. Fat is only stored up in the body when the supply of nutrients is greater than the demands of the system. In considering this question, we have not only to consider the formation of body fat, but also its consumption, for this latter is equally important to feeders.

We have already mentioned the fact that when a proteid diet is fed alone it has the effect of increasing the consumption of the protein matter in the body, and that it does not increase the weight of the animal, but in the case of feeding a fat diet alone we note that it has no effect at all on the consumption of the fat of the body, but that this consumption remains constant, no matter what quantity of fat is given. We remarked that the decomposition of fat remains constant, and this is correct with but one reservation—namely, that a relatively larger decomposition of fat takes place in the bodies of very fat animals than in lean ones. This one point is very interesting, especially to fatteners, for it explains the reason why increase of weight is always more marked during the earlier stages of fattening than is the case towards the end of the fattening process. All statistics that we have seen published illustrate this point—namely, that the increase is mostly during the first ten days or two weeks of the feeding period, and that it is mainly the quality that is improved during the last ten days or week.

The effect of a fat free protein diet on the consumption of fat in the body is remarkable. The larger the quantity fed, the less fat is decomposed, thus showing that a protein diet has a protective effect. In an experiment on a dog by Pettenkofer and Voit, this effect was shown. When 1,500 grms. of fat-free lean meat was fed the decomposition of fat was checked, and, moreover, when larger quantities of this food were given, the animal was

able to lay on fat. The same investigators further showed that when a fat and protein food was given, the following results were obtained. With the same quantity of protein food in the form of meat, with varying quantities of fat, the gain in body weight increased as the amount of fat was increased, and, as a rule, this gain was proportional to the fat fed. With a liberal supply of protein, about as much fat was found in the body as was given in the fat of the food. This appears to suggest that the fat derived from the nitrogenous matter is not so stable, and that it will be more easily decomposed than the fat derived from the fat of the food. The effect of feeding carbohydrates is to decrease the fat consumption in the body, and, moreover, the carbohydrates are decomposed in preference to the body fat. In feeding carbohydrates with protein, it has been found that all the fat derived from the protein may be deposited as body fat, but if the supply of carbohydrates is increased beyond this point, no more fat is laid up on the body, the carbohydrates being oxidised. It will be noticed from this that carbohydrates and fat act differently when fed in conjunction with protein, for the more fat given, the greater the quantity stored in the body.

This brings us to the question of the relative value of fat and carbohydrates. As aids to flesh formation it has been pointed out that these two constituents may be regarded as equal, but Voit and Pettenkofer have proved that for fat-production 100 parts of fat are equivalent to an average of 175 parts of carbohydrates. Neither of these functions can be fulfilled by fats to the extent indicated by their fuel value, or as would be inferred from the quantity of oxygen required for their complete combustion.

The feeding of very wet foods has a deleterious effect on the formation of fat. Also any conditions that cause an excessive consumption of water should be avoided. A high temperature is also injurious to fat formation, as it tends to increase the quantity of water drunk, and, moreover, it induces greater perspiration. On the other hand, a low temperature is objectionable, as increased oxidation is then necessary to maintain the body heat. The oxidation processes are increased by muscular exertion of any kind; therefore exercise must be avoided in the case of fattening stock. This not only applies to external movements, but also to the internal organs, and so for this reason bulky foods, as they require more energy on the part of the animal to move them through the digestive tract, and a larger quantity of the digestive juices to extract their nutritive elements than do more concentrated foods, should not be fed to fattening stock.

The fattening process depends on the amount of nutrients taken up by the system over and above its requirements. Anything, therefore, that will increase the oxidation processes going on in the body will prove conducive to fat-production. It has been proved that a small amount of blood and a small content of hæmoglobin, the colouring matter of the red blood corpuscles, are favourable to fattening. In some parts of the Continent we have heard that fattening animals are bled, and the above is a possible explanation of the custom. It is generally accepted that the absence of light is an aid to fattening, and this is correct. By keeping animals in the dark, the content of hæmoglobin in the blood is decreased, and, as pointed out above,

this is a favourable condition for fattening. The effect of the deprivation of light is more noticeable with full-grown animals than with young stock, but even in the latter case it is considerable. We have already referred to the fact that with phosphorus poisoning a peculiar form of fat appears. We may mention in this connection that this is brought about by the poison depriving the blood of its oxygen, and the result is the formation of fatty matter from the muscular tissues.

(To be continued).

REDUCING SIZE IN WHITE LEGHORNS.

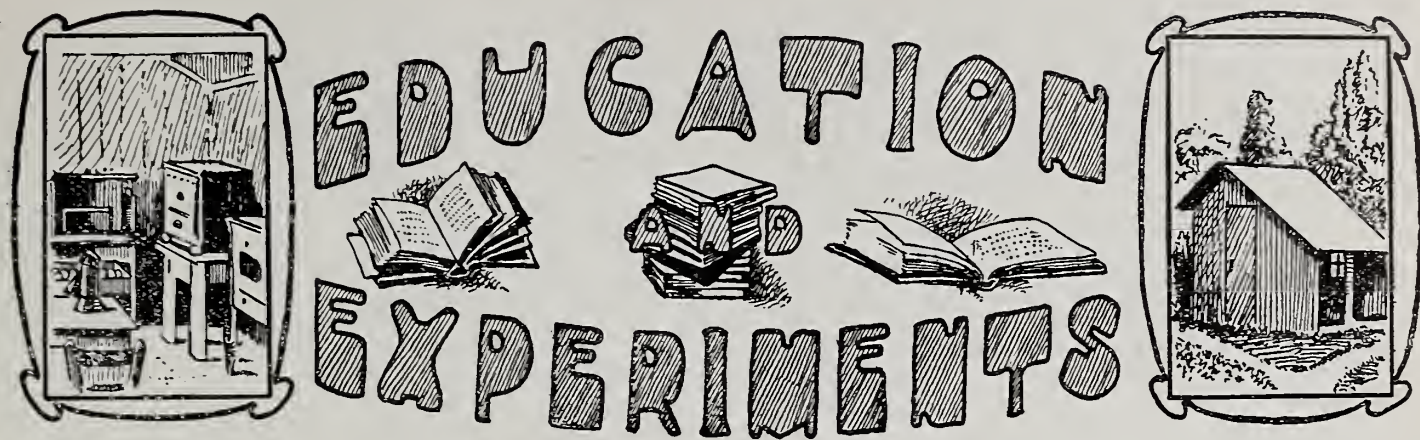
By H. DE COURCY.

WHY has the White Leghorn ceased to be regarded as the most useful of all farmers' fowls as an egg-producer? For the simple reason that it has suffered the same fate as many another useful breed—it has been totally spoiled by the British fancier. Twenty years ago, and even at a more recent date, the White Leghorn was regarded by farmers throughout the length and breadth of England, Ireland, and Scotland as the most useful of an exceedingly profitable family of fowls—the Mediterranean family—and, travelling by train and cycle throughout almost every county of these islands, the writer well remembers that farm flocks were largely made up of White Leghorns and crosses from that breed. But the Leghorn has undoubtedly been superseded, and it is doubtful if its successors are as profitable as the old-fashioned Leghorn was. The question arises: Why should the farmers' flock of Leghorns be affected by the whims of fanciers since the breeding of exhibition and utility Leghorns are two distinct branches of an industry? The answer is that the farmer now, as always, depends upon the breeder of pure-bred and exhibition poultry for his supplies of new blood, and the stock cockerels used to improve farm flocks come largely from the "misfits" produced in the yards of the exhibitor.

Considerable controversy has recently taken place regarding the advisability or otherwise of making a distinction between Leghorns of the old and new types, and it is nothing short of a great pity that such a course should be considered necessary, for we certainly have enough varieties of the Leghorn without duplicating them, and the troubles of show committees would undoubtedly be increased by any such course. The minor shows find it hard enough to provide classes for all the Leghorns, without having the breed duplicated, and, of course, if there were an English Leghorn and an American, Danish, or Italian Leghorn, patrons of the latter type would expect classes at the shows as well as would breeders of the English type. That the Leghorn has suffered as an egg-producer has been abundantly proved by the results of various laying competitions,

and the fact is generally admitted. This being so, is it not a pity that those who favour abnormal size, stilty legs, enormous combs, and such other attributes cannot be induced to moderate their notions of what a true Leghorn should be? I would not go so far as to say that we should accept the original Italian type, for a little more size than that would be an acquisition, but it would undoubtedly improve the position of the Leghorn family, and especially of the White Leghorn, if birds of medium size became once again fashionable.

A description of some experiments which I have been carrying on for the past few years with a view to reducing the size of the Leghorn, shortening its leg, making the comb finer and more compact, improving the all-round shape and carriage of the body, and increasing the laying powers of the fowl may be of interest to lovers of the sprightly, active Leghorn which we knew when we were boys. To effect the purposes mentioned, I have not imported Leghorns from America or Italy, or yet from Denmark, but have succeeded in evolving a very handsome and useful type of business Leghorn by introducing a cross of the Golden-Pencilled Hamburg. My beginnings in this direction were accidental. A Golden-Pencilled Hamburg hen which was running with my Leghorns laid a nest of eggs and hatched them out in a hedge in the spring of 1905. When her chicks grew up I had one cockerel which was not handsome, being of Hamburg shape, Barred Rock colour, with innumerable red and yellow feathers in neck and saddle, and he was consigned to the pot. Of pullets there were five—three of them being pure white, whilst the remaining two were white, with a slight buff tinge on the breast. All were rose-combed, white-legged, and of Hamburg rather than Leghorn shape, but were about a pound heavier than the Golden Hamburg. These pullets were reserved, and, as I had anticipated, proved themselves to be exceptionally good layers. They were mated with a pure-bred Leghorn cock, and in the following year I had from this mating a fine flock, both cockerels and pullets, of all white chickens. About half of them had rose-combs and the other half single combs. The legs of all were a fine bright yellow, the size was about right for my ideal of a business Leghorn, and the shape was perfect. I had got rid of the stilty legs, the long, straight back, the heavy comb and long pendulous wattles, and had produced fowls with nicely-curved backs, beautifully-carried tails, shapely combs, wattles, and ear-lobes, and breasts with some prominence. Of this lot the single-combed pullets were reserved and mated again with a Leghorn cock of medium size, and this year's chickens from this mating promise well. There is not a single rose-combed bird amongst them, the shape is good, and the legs are of brightest yellow. I have also reserved a few cockerels of last year's breeding—three-fourths Leghorn and one-fourth Hamburg—and by mating these with pure-bred Leghorn hens next year, a strain can be maintained which has just enough of Hamburg blood to keep the Leghorn within the bounds of moderation in size without injuring the Leghorn type to any extent.



PROPOSED NATIONAL POULTRY INSTITUTE AND EXPERIMENT STATION.

A MEETING of Representatives of Public Bodies and Societies was held at the Hotel Metropole on the 7th inst., to consider the formation of a National Poultry Institute and Experiment Station, to which were appointed delegates by the Board of Agriculture and Fisheries, Agricultural Organisation Society, British Dairy Farmers' Association, Central Chamber of Agriculture, Central Land Association, Central Small Holdings Society, National Poultry Organisation Society, Poultry Club, Royal Agricultural Society of England, and Utility Poultry Club. The meeting was presided over by Mr. R. A. Yerburch, M.P., and apologies for non-attendance were received from Lord Blyth, Capt. J. A. Morrison, M.P., the Marchioness of Salisbury, the Duchess of Somerset, and Col. Victor Van de Weyer.

Since the College Poultry Farm, Theale, was closed in September last, we have had no central educational poultry farm and experiment station in this country. It is felt, therefore, that an attempt should be made to establish an institution at which advanced students can receive training, and where the many problems in connection with the poultry industry awaiting solution can be scientifically investigated, such an institution to be in the closest touch and working in conjunction with agricultural colleges and county councils.

The passing of the Development Act of 1909 for the first time affords a prospect of securing a substantial proportion of the funds requisite for a National Poultry Institute and Experiment Station on an adequate scale, provided that it can be established on a permanent basis, with sufficient income obtained as donations and subscriptions from county councils and other public bodies and private generosity.

A draft scheme was submitted for consideration which had been provisionally approved by the Board of Agriculture and Fisheries, which, should donations and annual subscriptions be forthcoming on a sufficient scale, is prepared to do all in its power to support an institute by active interest in its work, and to obtain adequate grants from the Development Fund, proportionate to the contributions which may be forthcoming from other sources.

After discussion, in which Mr. Robert Armitage, M.P., Mr. B. W. Horne, Mr. Ernest Matthews, Mr. A. H. Matthews, Mr. Rouse Orlebar, J.P., Mr. L. C. Verrey, and Mr. C. E. Walkey took part, it was resolved, on the proposal of Mr. Robert Armitage, M.P., seconded by Mr. Rouse Orlebar, J.P., "that in view of the growing importance of the poultry industry in this country, and the need for advanced instruction and experimental work, this meeting deems it advisable that a National Poultry Institute and Experiment Station should be founded."

On the proposal of Mr. E. Matthews, J.P., seconded by Mr. L. C. Verrey, a Preliminary Committee was elected to take the necessary steps, consisting of Sir C. Thos. Dyke Acland, Bart., Robert Armitage, Esq., M.P., Lord Blyth, Sir Francis A. Channing, Bart., M.P., Capt. J. A. Morrison, M.P., the Hon. Cecil T. Parker, the Marchioness of Salisbury, Col. Victor Van de Weyer, and Col. Robt. Williams, M.P., with power to add to their number; and, further, that the public bodies and societies represented at the meeting, and also county councils, be invited to appoint members of that committee.

Mr. Edward Brown, F.L.S., Regent House, Regent Street, W., was asked to act as hon. secretary *pro tem*.

HYBRIDISATION IN POULTRY.

ALTHOUGH one frequently hears that a true species cross has been secured, the number of fully authenticated cases is very small indeed. The only one that has come before the notice of the writer is a hybrid between a Ring-Neck Pheasant and a Bantam hen. This bird was hatched on April 28, 1908, on the Rhode Island Experiment Station at Kingston, R.I., and although twenty-six eggs of the same cross were set, none of the others proved fertile. When we saw this bird in the summer of 1909 it was impossible to determine the sex, and we understand that even now Dr. H. J. Wheeler is unable to state definitely whether the bird is a male or a female. A case of alleged hybrids was reported from Ohio, and, in order to investigate the matter thoroughly, the Kingston Station secured

three of these birds—two females and one male: also their alleged mother—an under-sized Barred Rock hen. At the time of our visit the results of the experiments with these birds were not completed, but we were told that it seems very probable that the birds in question are not hybrids, but the result of a cross between a Brown Leghorn and the Barred Rock hen. We await the promised full account of the investigations upon the alleged hybrids, which will be published at an early date, before discussing the matter more fully.

THE EXPERIMENT STATION, KINGSTON, R.I.

IN the department of biology in connection with the above station, Director H. J. Wheeler and his staff are working toward the solution of many problems that confront the practical poultry-keeper. The latest report is just to hand, and many interesting particulars are therein made public. At present the work of the division in this subject is planned under the following heads:

1. A continued study of the etiology of blackhead in turkeys, together with means for its prevention.
2. A study of the causes and means of prevention of the losses of broiler chicks, including conditions affecting the formation and laying of the egg, incubation and brooding.
3. Co-operative work with the Division of Chemistry in the study of the influence of different concentrated nitrogenous feeding-stuffs upon the growth of young chicks.

It has been the policy of the investigation thus far to concentrate attention upon the etiology and the pathology of the disease, and upon the biology of the causative organism. One must know the character of the organism, and the means by which its destructive work is brought about; then hope can be entertained that its natural course can be modified, and perhaps the disease eventually stamped out.

It is interesting to note that the same organism (*Coccidium cuniculi*), which is the specific cause of blackhead in turkeys, is found in chickens attacked by "white diarrhoea," although this may not be the sole causative agent. The experimental data secured up to the present time at this station suggest strongly that many cases of so-called roup are also due to the same organism as that which causes blackhead in turkeys and white diarrhoea in chicks. While in these instances the protozoan attacks the epithelium and the mucosa of the digestive tract, together with some of the glandular organs of the body, roup is characterised by the invasion of the

mucous membranes of the orbital sinus, naso-lachrymal duct, nasal chamber, mouth, pharynx, and larynx.

AN AMERICAN EXPERIMENT.

THE Nature of the Stimulus which Causes a Shell to be Formed on a Bird's Egg. By Raymond Pearl and Frank M. Surface, Maine Agricultural Experiment Station. This investigation was undertaken to determine precisely what is the nature of the stimulus which excites the reflex activity of the shell-secreting glands of the oviduct in birds. These possibilities were to be considered:

1. That the stimulus is mechanical, and arises from the presence of a soft body (the egg) within the "uterus" or "shell-gland."
2. That the stimulus is chemical in nature.
3. That the activity of the shell-secreting apparatus is controlled directly by the functioning of other parts of the reproductive system.

If shell-formation is caused from the mechanical stimulation of the "shell-gland" by the egg, it would be expected that any foreign body introduced into that portion of the oviduct would have a shell formed around it. It was found to be impossible to introduce a foreign body of any size from the outside into the "shell-gland" without resort to such violent methods as to make the conditions entirely abnormal. Further, the foreign body introduced should approximate to the consistency of the egg, so that the stimulus may be physiological rather than traumatic.

To realise these conditions, the following operation was performed on hens: The oviduct was transected 1cm. or 2cm. above the upper end of the "shell-gland." The anterior portion of the oviduct was then ligated. The intestine was transected just anterior to the cloaca, and the cloacal wall repaired by inversion of the stump and a purse-string suture. Then the cut end of the intestine was anastomosed to the cut end of the oviduct ("shell-gland"). As a result of this operation, the fœces must necessarily pass through the "shell-gland" on the way to the cloaca. In hens on which this operation has been performed a calcareous shell is deposited on the fœces during their passage through the shell gland. The results obtained from these experiments are held to warrant the following conclusions:

1. The stimulus which sets the shell-secreting glands of the fowl's oviduct into activity is mechanical rather than chemical in nature.
2. The formation of a shell on the hen's egg is brought about by a strictly local reflex, and is not immediately dependent upon the activity of other portions of the reproductive system (nervous impulse or hormone formation).



MEN AND MATTERS.

By W. W. BROOMHEAD.

The Combined Clubs' Show—The "Certified" Poultry Judge—The Royal Show and the Poultry Club—The Liberty of the Judge—The Wyandott Family—The Fashionable Blue—The Double Testimonial—May Shows.

THE COMBINED CLUBS' SHOW.

I hear from Messrs. W. M. Bell and W. J. Golding, joint hon. secs. of the combined specialist clubs' show, that arrangements for the first annual event have been fully and satisfactorily discussed. They report that a most suitable hall in the North of England has been decided on, subject to satisfactory dates early in December being arranged. I also hear—but the information does *not* reach me via the joint hon. secretaries—that the chosen town is Sheffield, and that the dates are Wednesday and Thursday, December 14 and 15. How far this is correct I am not prepared to say, but I had the information from a very reliable source. The promoters are very sanguine of success, and they feel confident that the terms offered will ensure most clubs holding their annual shows in conjunction with them. Since the object is a commendable one, I wish it all success.

THE "CERTIFIED" POULTRY JUDGE.

No doubt many readers of the RECORD, probably most of them, will be surprised to hear, as indeed I was when the information reached me quite recently, that it is possible to be a "certified" poultry judge in this country. In the March, 1909, issue of the ILLUSTRATED POULTRY RECORD I mentioned that an endeavour was being made in certain quarters to get poultry judges licensed; in fact, a sub-committee of the Poultry Club still has the matter in hand. But a "certified" poultry judge, in this country, strikes me as quite a novelty. Who certifies to the holder's capabilities, do my readers ask? The fancier who claims the right to use the title—so far as I know he is the only one to do so—wrote to me that he holds a certificate, "which I won in competition at _____ Show, signed by Messrs. _____ and _____, declaring me fully qualified to judge poultry." Personally, I have no doubt that the "certified" judge is capable of "wielding the wand," since he is, I see, a "breeder and exhibitor of challenge cup and gold medal" fowls! Of course, judging competitions are not unknown;

they are the favourite amusement at some fanciers' societies' meetings during winter evenings, and when "table" shows are being held. But the idea of awarding certificates of merit in connection with them does not appear to have been thought of by those who promote such competitions. There is just this to be said concerning them: What about the capabilities of the examiners?

THE ROYAL SHOW AND THE POULTRY CLUB.

As I mentioned in these columns in the RECORD for last March, a strong protest was lodged at headquarters on account of the fact that the Royal Show for 1910 will not be held under the rules of the Poultry Club; but, as was only to be expected, since the executive of the event has long ago completed its arrangements for the show nothing can be done in the matter this year, or, rather, in connection with this year's exhibition. Those who are "in the know" can sift the matter and see the reason for it; but, although no blame can really be attached to the Royal, it does appear strange that the advice of a certain section was not fully investigated. That a show benefits by being held under Poultry Club Rules has been proved on more than one occasion, and I believe there is no better example of this than the Royal Lancs. Both in 1908 and last year there was a very substantial increase in the entries in the poultry section at that society's shows, without doubt for no other reason than that the events of those two years were held under Poultry Club Rules. But that there will be no reduction in the entries at the 1910 Royal, I have not the slightest doubt; in fact, I believe there will be an extra big "turn-out" this year on account of the fact that the show will be what may be termed a double event, since it will include the annual show of the Royal Lancs Society.

THE LIBERTY OF THE JUDGE.

It is doubtless fresh in the memory of most readers of the RECORD that at the annual meeting of the Poultry Club, held at the Dairy Show last year, a rule was passed *nem. con.* that in future any judge officiating in that capacity at a show held under its rules must be a member of the club. It is quite evident, however, that *all* members of the Poultry Club are not satisfied that the rule is likely to be of service to the club. Consequently, at last month's meeting of the Council the advisability of omitting from Show Rule 3 the words, "And any judge appointed to officiate in that capacity at this show must be a member of the Poultry

Club," and substituting "the Council of the Poultry Club to have the option of objecting to any person nominated to judge," was on the agenda. After a lengthy discussion it was deemed necessary to submit the matter to an extraordinary general meeting at an early date. In connection with the subject, it was pointed out that during the past three or four years not more than 50 per cent. of the poultry judges at the Crystal Palace (International) were members of the Poultry Club. I hope to attend the meeting and have a few notes on it for next month's issue.

THE WYANDOTTE FAMILY.

In the notes on the Wyandotte that I contributed to last month's issue I omitted to mention one of the most recent additions to the breed—namely, the Buff Columbian. Mr. H. Bromet had the honour (*sic*) of introducing this sub-variety—presumably it *will* be a sub-variety when it becomes recognised in Fancy circles, provided it is not a "single sport" or "mongrel bred" bird. He exhibited a raw cockerel at Tadcaster Show last year, "which," wrote a reporter when commenting on the show, "reminded us of the Rhode Island Red, inasmuch as each requires an announcement to prevent any mistake in recognition." Mention of the Rhode Island Red reminds me of the Red Wyandotte and the discussion that is taking place in the columns of a contemporary concerning the two breeds. It is contended by some that if it had not been for the Rhode Island Red, there would never have been this new variety of the Wyandotte. Apparently, however, the fact that the former breed was originally a single-combed one is forgotten; the Rose-combed Rhode Island Red is, comparatively speaking, of recent introduction, and is undoubtedly the result of the present craze for "rose-combing" the recognised single-combed breeds. It must be acknowledged, of course, that, like the Speckled Sussex and the Jubilee Orpington, it is difficult for many people to tell "t'other from which." Writing to me some months since concerning the Red Wyandotte, the originator, Mr. Allen Bullock, of Box, Wilts, said: "I have bred the Reds from pedigree Wyandottes of Crystal Palace strain; and as all Red breeds have black tails, I have aimed to produce the same. I find at present that black in flights is allowable, and of this also I get a little. The tails of all my stock birds are black, with a slight tip of red in the cocks and cockerels, but there is not so much black in the pullets' tails." With those exceptions the colour is an even red, but not quite so deep as that of the Rhode Island Red. The originator informs me that the variety breeds "wonderfully true to type," which is not surprising in this instance, considering that the birds are pedigree bred; and since they do not require shading to keep them in show condition, it should be a strong point in their favour from the novice's point of view.

THE FASHIONABLE BLUE.

In an article which he contributes to a contemporary on "Blue *versus* Dove Colour," the Rev. J. N. Williams says he believes that he, with others, has been in error in making use of the term "pigeon"-blue when referring to the colour of the Blue Wyandotte, and considers that a soft dove-colour would more nearly describe the desirable tint. Mr. Williams is a colourist, and one, I

may add, of no mean order; hence he goes into the question from that point of view, and his arguments in favour of this dove-colour are certainly sound. Reduced to so many words, they are that the tint of what I think is best described as the new blue is "a French grey, or a mixture of black and white." It is common knowledge, I



Photo by J. W. Hurst.]

WHOOPER SWAN.

[Copyright

The upright carriage of the neck gives this species some resemblance to the goose, which is even more striking upon the water. This specimen was exhibited at Moscow Show in 1908, and imported by Messrs. John Baily and Sons. The "song" of a "herd" of these birds passing through the air has been likened to "trumpets heard at a distance," although this cry of the may apply to the species known as the "Trumpeter."

believe, that the variety of fowl called by us the Cuckoo or Barred, and somewhat of a blue, originated in crossing black and white fowls. To establish a good blue of this new tint means that the white must be almost entirely eliminated and the black greatly reduced. Who will do it? Who can? None of us, I fear.

THE DOBLE TESTIMONIAL.

Mr. C. P. Telling, of Horfield, Bristol, informs me that Mr. George Doble, the popular West of England poultry judge, has just completed a quarter of a century's engagements, and to commemorate the occasion it is proposed to present him with a public testimonial. To that end, therefore, Mr. Telling appeals to the Fancy at large to support him in the movement. It is, perhaps, not widely known that some years ago Mr. Doble, considering that it was not consistent for a judge with many appointments to be an exhibitor also, sacrificed what was perhaps one of the best exhibiting connections ever held by a fancier in the West. Mr. C. P. Telling, of 102, Thornleigh Road, Horfield, Bristol, writes that several fanciers have already promised their assistance, and that he will be glad of the co-operation of others who are willing to collect subscriptions.

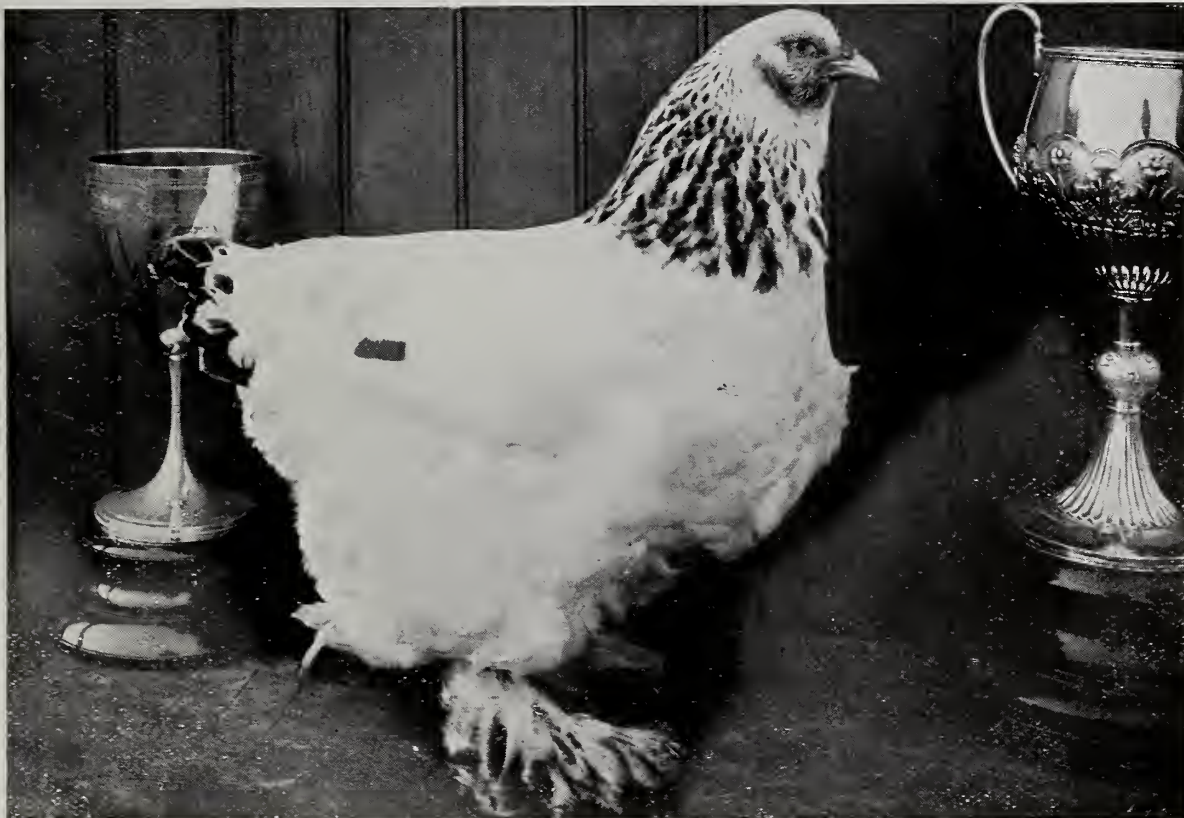
MAY SHOWS.

With Delph, near Oldham, on April 23, and Ayr on April 26 and 27, the 1910-11 show season may be said to have opened. There are several fixtures for the present month, the chief among them being

be up to date, and it could well be revised. Thirteen of the thirty-four classes are for cock or hen, even in such popular breeds as Orpingtons, Wyandottes, and Leghorns, while, although the event takes place early in May, there are four classes for birds hatched in 1910, two each for fowls and Bantams. June promises to be a busy month, and among the events already announced to take place there are the Wiltshire Agricultural, at Warminster, on the 1st and 2nd; the Worcester County, at Worcester, 7th, 8th, and 9th; the Essex County, at Witham, 8th and 9th; the Shropshire Agricultural, at Shrewsbury, 16th and 17th; and the Royal, at Liverpool, from the 21st to the 25th.

THE LIGHT BRAHMA.

BRAHMAS have "dropped out of fashion" of late years, not only as show birds, but for utility purposes. It is contended that the "faddist" fancier, striving after a profusion of foot-feather, has sacrificed all other points to obtain it. Well, it must be admitted that there is a lot of truth in the



LIGHT BRAHMA HEN.

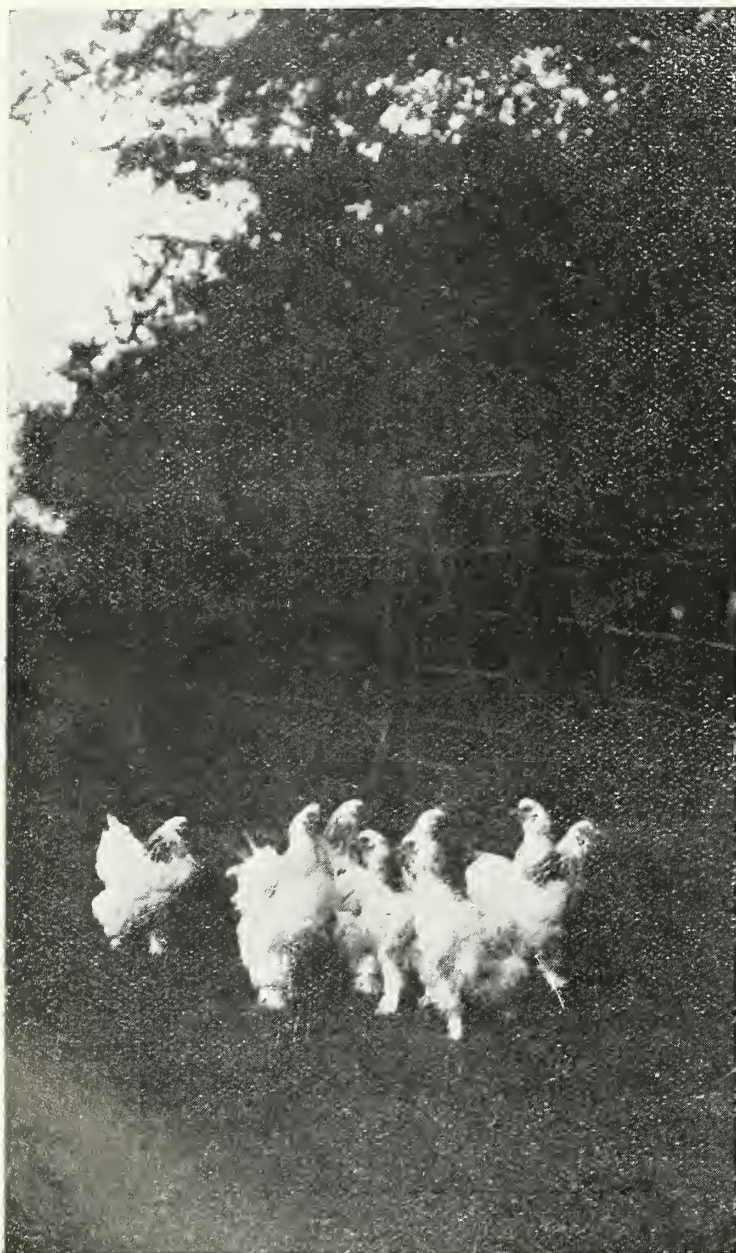
[Copyright.]

Otley, Yorks, on the 6th; the Devon County, at Exeter, on the 13th, 14th, and 16th; the Somerset County, at Bridgwater, on the 18th, 19th, and 20th; Belfast, on the 18th; Darwen, Lancs, on the 21st; and the Bath and West, at Rochester and Chatham, from the 24th to the 28th. Otley generally attracts a big entry and an excellent "gate"; the poultry show is now held on a Friday, but until two or three years since it was one of the most popular of the Saturday fixtures. The classification for poultry at the Devon County Agricultural Show cannot be said to

statement. At one time there was no breed to touch it in this country, but at present the Brahma has not many followers. However, the scheme now under consideration by the Brahma Club, of encouraging the novice, may be the means of giving the breed a new lease of life.

There are four varieties of the Brahma, but two of them—viz., the Buff and the White—are rarely met with, in this country at least. Of the others, the Light is certainly the more popular. It is indeed a most charming fowl when bred to standard. The cock's

neck hackle is silvery-white, with a sharp stripe of brilliant black in the centre of each feather, tapering to a point near its extremity, and free from a white shaft. His tail is black, or black edged with white, some of his tail coverts are evenly laced with white, and there is black in his flights; but with those exceptions the plumage is clear white, with either white, blue-white, or slate under-colour. The striping of the hen's hackle is more dense at the lower part, and the black centre of each feather is entirely surrounded by a white margin; but in other respects the colour of the hen is similar to that of the cock.



LIGHT BRAHMAS AT MESSRS. ABBOT BROS.
[Copyright.]

For utility purposes the Light Brahma is not extensively reared in this country. Nevertheless, it is by no means to be discarded, since, crossed with the Dorking, it produces big-boned chickens for table, and those which will stand fattening by the cramming machine. In America the Light Brahma is one of the chief breeds for the production of "broilers."

THE PROGRESS OF NEW VARIETIES.

{By WILFRID H. G. EWART.

IN the course of life and business one inevitably meets a few odd people who seem to have no particular appointed place anywhere; and in the course of life and business one occasionally knocks up against a few odd things that appear to have no part or interest in any scheme, natural or human.

Of that kind—one may reasonably suggest—are those breeds of poultry, the miscellaneous creatures whose composition is exceedingly vague, whose part in our scheme of things is not easily discovered, and whose prospects are very dim indeed. I am not anxious to discuss them disparagingly, but surely it is perfectly patent that many of these productions are floating about in the Fancy very much in the way and without conceivable object or possibility of advancement. Do the people who launch them seriously believe they have any definite value or any mission to fulfil? Do they think any money is to be made out of their efforts? Well, I suppose some of those people think that; a great many work in the interests of self-advertisement, and a few are in tragic earnest about providing the Fancy with material to work upon.

Of course, the whole mania for turning out novelties (as they are sometimes called) arose from that Black Wyandotte boom of a few years since. In some stupid way fanciers have jumped to the conclusion that they (severally) can engineer a similar excitement, but they have made no intelligent deductions from this same Black Wyandotte experience. They don't seem to notice how natural and equable was its progress from nonentity to notoriety—that it was boomed by the public, not by individuals. They are not concerned—or seem not to be—that it has an obvious practical value and that this value appeals strongly to a particular class.

But then I think the secret of the whole thing is either unappreciated or else ignored by these enthusiastic breed-makers. No variety ever made substantial progress in the estimation of the public, except its leading characteristic was a purely useful one. It is no earthly good "dumping" some half-made article on the market and asking the fancier to boom it because it offers a great deal of scope for his art. There must be some real, tangible—and obvious—quality which really is worth developing. That applies very strongly to some of these new productions—notably to the "blue" varieties of Leghorn, Wyandotte, Orpington, and Rock. They cannot appeal to the utility poultry-keeper since not only have they no particular advantages to offer him, but they are positively unsuited to his work and requirements. What has the farmer or the backyarder to do with a creature which turns out every sort of mongrel oddity? You say, Leave it to the Fancy to perfect these breeds; but is the Fancy ever going to perfect them to the extent of practical efficiency? And what sort of breed is that whose sole mainstay is the support it receives from exhibitors? They constitute a minor section of the poultry industry, and we know that no existing breed owes its success merely to their patronage.

Review, for a moment, the progress of all the half-made varieties that have been ostentatiously

placed upon the Fancy market since the heyday of that Black Wyandotte enterprise. Has one passed the real test—the barrier of public demand? Is there any indication that the public wants a Cuckoo Orpington, or a Blue Rock, or a Spangled Wyandotte? Have they any justification—do they represent any sort of merit? And those are three only of scores of similar productions. They are all clamouring to be recognised, and almost every "originator" makes the same foolish mistake. He cannot wait—he does not know the value of patience; he works a couple of years on his mongrel foundation, and then hurls the results among us without a shred of excuse. As for digesting the lessons of other people's experience, he cannot be bothered to do that. He is out for self-advertisement, or pecuniary profit, or personal advantage of some kind.

Even so, in this as in every matter, one must discriminate. Although, in my opinion, the average new breed is utterly useless and unworthy of attention, there are people whose efforts in this direction deserve notice and encouragement. For instance, I know a poultry-keeper who has for years been working on a variety which should, when completed,



SCOTCH GREY PULLET. [Copyright.]

be of real value to the poultry industry. Its claims will rest on the most practical qualities—it will be a plain creature which may not appeal to the fancier in the smallest degree.

Whether it will boom or not, I don't know. Perhaps it will attract no great amount of attention;—one cannot be responsible for that. But I shall be surprised if it does not progress steadily in public favour.

THE SCOTCH GREY.

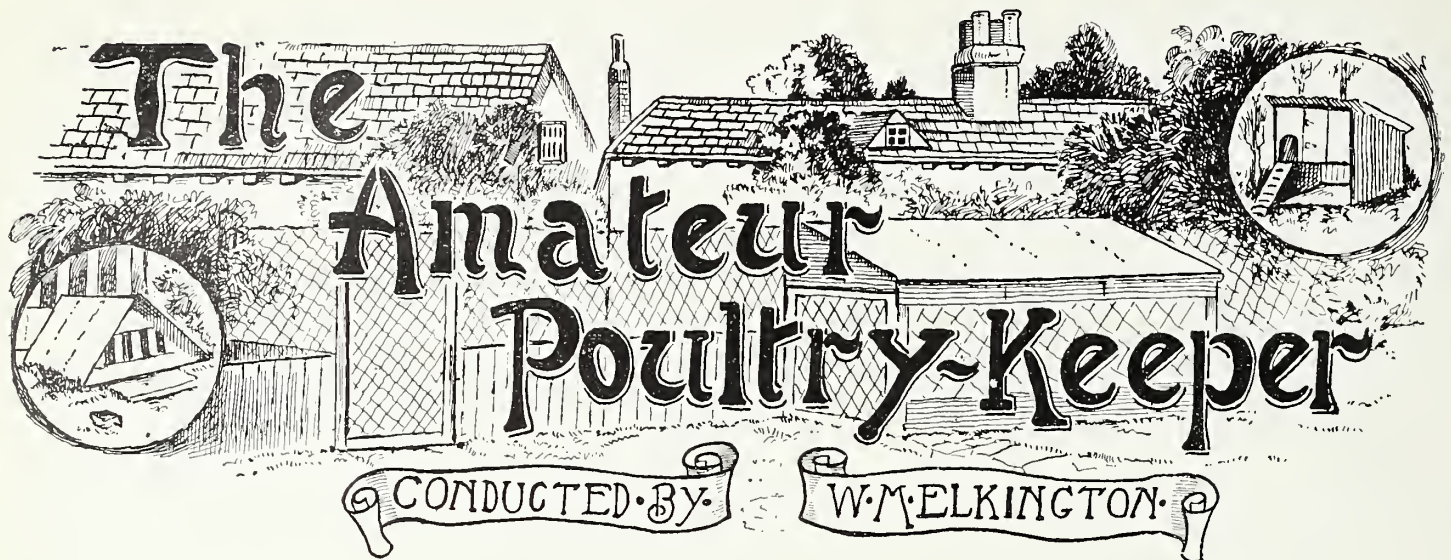
ALTHOUGH the Scotch Grey is still a fairly popular breed "on its native heath," it is very questionable if it has had much of a vogue, even in its palmiest days, south of the Border. Nowadays it is seldom that classes are provided for the breed at English shows, but even when they are put on, the entries, as a rule, are not very large. The



SCOTCH GREY COCK. [Copyright]

pity is that it is so, since the Scotch Grey is a first-rate fowl in all respects. The breed may be classed as a general purpose one from a utility standpoint, since the females are good layers and the cockerels are by no means bad for the table. The eggs are white-shelled; and when the hens fall broody they generally sit closely and make careful mothers. So seldom do they show any inclination to sit, however, that they may be said to belong to the non-sitting class.

The breed has been called the Scottish Dorking, but is of much lighter build than the Dorking of the present day, and more after the type of the Old English Game, though not so short-legged as the latter breed and of somewhat heavier build. The Scotch Grey is a one-variety breed, and the colour and markings are of the Cuckoo stamp. The ground colour of the cock's body, thighs, and wing-feathers is blue-white, while that of the neck hackle varies from blue-white to light grey; the barring is black with a metallic lustre. The markings of the hackles and tail are slightly angled or V-shaped, but on other parts of the fowl they are straight across each feather. The chief point in exhibition specimens is to get the alternating bands of black and white of equal width, and the markings all over rather small, even, and sharply defined. It is a great thing to have a Scotch Grey to "read" well throughout—i.e., to be of the same shade of colour from head to tail.



Breed and Strain.

There are many lessons that an amateur must learn before he can attain complete success in poultry-keeping, but none is more urgent than the relative importance of breed and strain. In these days the outsider is naturally disposed to pay more attention to breed, and to overlook the more pressing question of strain, for in laying competitions as in public and private tests and experiments it is the breeds and varieties that figure in the limelight, as it were, whilst it is necessary to look behind the scenes to understand the relative importance of strain. Thus, we have come to regard White Wyandottes, White Leghorns, and Buff Orpingtons as our laying breeds *par excellence*, and the amateur has formed the idea that he need only keep one of these breeds to achieve the best results in egg-production. Let me explain, however, why these three breeds in particular have earned such an enviable reputation, for there is a lesson for every amateur underlying the story. To put it briefly, these breeds owe their popularity to certain strains, and these strains have been produced by careful selection. With suitable material, similar results might be achieved in many breeds that possess the merits of hardiness, vigour, and prolificacy, and in the future when specialist breeding for egg-production becomes more generally practised, we may see representatives of breeds that are at present lightly esteemed holding the leading positions. The three varieties already mentioned have proved valuable material, and by careful selection skilled breeders have developed the hardy and productive properties of their strains until the question of strain is, to all practical poultry-keepers, regarded as of the highest importance.

Developing a Strain.

The result is that in any of the three breeds mentioned, and in others as well, some strains stand out head and shoulders above others for egg-production. That is why it is useless for an ambitious amateur to take up one of these breeds unless he understands the importance of strain. Let it be remembered also that, as in other connections, a good article invariably costs more than a poor one,

and a skilled breeder of utility stock will naturally charge you more for his birds or eggs than a breeder or a dealer who has never paid any attention to strain; with the result that people whose faith in the equality of all hens has never been disturbed shrewdly purchase in the cheapest market. The awakening comes later, when they find that a neighbour is selling eggs at twopence apiece, whilst their hens are doing nothing. And both may be of the same breed. Of course, it may be the fault of the management or the accommodation; but, after all, you cannot get away from the importance of strain, and if you buy stock from unselected parents at low prices, whilst your neighbour spends a little more upon birds that are bred from layers and bred to lay, it is morally certain which will come out on top in the end. And it will not be you.

Laying Strains for Amateurs.

I have heard it suggested that the back-yard poultry-keeper, meaning one who keeps a few fowls in a small run, need not concern himself with laying strains, but I venture to think that this is a very great mistake, for when one can only keep a few birds it makes a great difference whether they are good or bad layers. Consequently, those who never breed, but buy pullets for laying purposes every year or every other year, should be prepared to pay a reasonable price in order to secure birds from a well-cultivated strain, whilst those who do breed should commence with the best stock they can obtain, and carry on the work of selection upon their own account in order to maintain the standard of their flock. Pedigree breeding is a comparatively simple matter when one's stock is small—but select. There is not much difficulty in identifying wasters, even without the aid of trap-nests, and in the breeding season it is only necessary to pick out a few of the tried regular layers for breeding from. Mere prolificacy, however, is not sufficient to make a strain. Vigour is quite as essential, and as a general rule two-year-old hens are preferable to yearlings. Dangers attend this practice of breeding for egg-production, especially when one considers eggs alone. Some of the most prolific layers lack vigour, and their eggs are small. These are not the kind upon which to build up a strain, nor yet should

forced layers be depended upon. If the amateur will consider health and vigour before selecting his most consistent layers he will stand a very good chance of keeping his stock up to the highest standard.

The Superfluous Cock.

It is an old tale, but perfectly true, that there are far too many cocks kept in amateurs' yards. A short time ago, a man living in a row of houses in my own village told me that he was getting enough of poultry-keeping through his neighbours. The people on each side of him kept fowls in their yards, and one had two small pens and the other one. But each pen contained a cock, and as the birds crowed against one another all day long and half the night, it was, as my informant put it, "a little bit thick." I told him that unless fertile eggs were required, a cock was quite unnecessary, and upon this fact being conveyed to the man with the one chattering, he turned it into money. The other man, however, was not so easily convinced. He had kept fowls for ten years and had always kept a cock in each pen, so he was not prepared to abandon a custom so readily. He admitted that he didn't want fertile eggs, as he never hatched any chickens, and I lent his complaining neighbour several books and papers in order to convince him, but without avail. The two cocks are still eating their heads off, and crowing in the intervals, and I am sure the neighbours have long since condemned poultry-keeping as a nuisance. This is an example of what is to be met with in thousands of cases, and if people would consider whether a cock is really necessary before running one with their laying hens, they might save the cost of the bird, and about seven shillings' worth of food per annum, for the male contributes nothing and does not influence egg-production. Moreover, in many cases a great annoyance to peace-loving neighbours might be avoided, so that it is a very serious question for town poultry-keepers.

A FEW SUGGESTIONS TO AMATEURS.

By AN AMATEUR.

KEEPING poultry in confinement is a much-discussed question in all our leading poultry journals and magazines; but there is a great difference in opinion as to what is confinement, and this article is to deal mainly with the problem of strict confinement.

I believe it is still a moot point with some poultry-farmers whether the confined hen lays better than her sister at liberty, and this question can never be universally settled until we all keep one breed of poultry, which would be most uninteresting from the fancier's point of view! Owing to total inability to secure much ground, I am obliged to keep my hens in exceedingly close quarters, their runs only measuring twenty by fourteen feet; but, with careful attention to detail and strict cleanliness, I find the birds keep perfectly healthy and lay well. The runs are earth, and every other day the droppings are collected, and several times a week a portion of the ground is dug up, so that there is no possibility of it becoming foul for some months. My pens are the already famed "Street" pens, and

scratching-sheds are attached, so that in wet weather the birds do not use the runs at all, and thus an extra cleansing of the ground is ensured, the birds keeping warm and dry and being well exercised by scratching.

As in nearly every case of live stock, feeding is the chief point on which amateurs go wrong, and this, I think, especially applies to poultry. We all have our own theories, and doubtless we all think them the best. It remains to be proved always by the number of eggs our fowls present us with whether our methods are satisfactory or no. My birds in autumn and winter have four feeds a day, the first three being all small in quantity. At eight in the morning they have two or three handfuls of grain thrown into the loose litter of the scratching-shed, the doors of which are open to allow them to come out at will. This keeps them busy till ten o'clock, when they have a hot mash of house scraps and cooked vegetables, mixed with middlings. At one o'clock they have a little more corn and greenstuff, cabbage, lettuce, dandelion, &c., and in the evening a good solid meal of corn. In summer they have three feeds, and in very hot weather only two. The corn is varied as much as possible in moulting-time, and I ring the changes on peas, wheat, oats, beans, &c., with the occasional valuable handful of linseed.

Maize and barley should be strictly avoided with birds in confinement; good sound oats and wheat are the safest of all foods. Plenty of grit, oyster and cockle shell is absolutely essential, and twice a week meat should be given, either butchers' offal or granulated meat-meal.

It has often been a source of wonder to me why poultry-farmers on a small scale do not amalgamate market-gardening with their poultry efforts; or, if not actual market-gardening, some venture such as tomatoes or mushrooms. We hear of a few men and women doing this—but only a few.

It is very easy for anyone to work out statistics as to profits, which when put into practice often yield a very different result to the one on paper, but I am going to do it, because this idea seems to be really practicable. Let us suppose we are keeping poultry on a small plot of land—say, a disused garden about seventy feet all round, a very small space, but a possibly profitable one. It would be possible to keep comfortably on this (always supposing the rules of cleanliness and ventilation are strictly adhered to) 36 fowls, providing a rest was given to the ground every year.

We buy 36 pullets at the end of September from a really reliable breeder at 5s. each; a good price, but we get a good return for our money. These pullets should, if we understand our business, bring us 120 eggs per bird by the following June, when, in the general case, they would begin to fall off preparatory to the moult.

The last three months of the time—that is, March, April, May—the droppings must be left on the runs, and, instead of being collected, well dug in twice a week. Then the ground will be well manured, and as the fowls are sold off, growing tomato plants, already brought on in frames or greenhouse, could go in. With luck and a good summer, these plants should bear ripe fruit in August and September, when they would fetch 5d. per pound, putting it at a very reasonable price. Then, again, an energetic man or woman, after thoroughly cleansing the houses and sheds, might utilise them for mushroom culture. I have worked out the statistics, which seem to me

to be quite feasible. As will be seen, I have counted the eggs at 1d. each, but if sold straight to customers without employing a middleman, I think really they would realise a little more on the total.

	£	s.	d.
36 pullets at 5s.....	9	0	0
Food for 36 birds at 1½d. per week per bird for 38 weeks.....	8	11	0
Tomato seeds	0	4	0
Rent of ground.....	1	10	0
	£19	5	0
	£	s.	d.
Sale of eggs—120 each bird at 1d. each	18	0	0
Sale of tomatoes—240lb. at 5d. per lb.	5	0	0
Sale of birds at 3s. each.....	5	8	0
	£28	8	0
Profit gained	£9	3	0

This brings in a substantial profit, and you will notice that in nine months I have only allowed each hen to lay 120 eggs; it is more than possible that in that allotted time she will lay more. Many people think 5s. per bird is a terrible price to pay; but if you give a good price you get a good return for your money, and the extra 1s. 6d. or 2s. is real economy in the end.

The tomato crop sounds rather a big return, perhaps, for 4s. worth of seed, but last year I grew myself 30lb. of tomatoes from 6d. worth of seed without any difficulty whatever.

I would undertake to say that the mornings would give enough time to work this plan, except, of course, just the evening feed, which can be left, if measured out first, to any intelligent maid. A capital of £40 would be ample to start it on at full pressure, and surely £9 per annum is a reasonable percentage on £40 from the investor's point of view! It may be workable and feasible, or it may not; personally, I think with careful contrivance it might answer very well. This question, however, can only be settled by the individual who tries it.

THE AMATEUR'S GUIDE FOR MAY.

MAY ushers in a new era, for the days are long, and we may reasonably expect to be rid of the piercing winds, and to experience that soft, balmy, and often humid weather that is so beneficial to vegetation and young growing stock. Chickens should make great headway this month, before the excessive hot and dry weather sets in, and as there is plenty of insect life about, it follows that early rising is good for both man and bird. Some people say that it is a bad plan to let chickens run about among the long grass while the dew is upon it, but it is a long time since I have seen the grass long enough and the dew heavy enough to necessitate close confinement after 7 a.m. during this month. On a fine spring morning there is nothing much to fear from this source, though in wet weather one must take precautions.

There is one direction, however, in which we must exercise care, and that is in keeping the young stock free from insect pests. Fine growing weather will avail us little if we allow red mites and other pests to multiply unchecked. Red mites are the most to be feared, though the easiest to deal with, for they feed upon the birds at night in the houses, and in the daytime are to be found in the wood-work, in perch sockets, cracks, and joints. Therefore, you can only destroy them completely by running the fluid employed into all cracks, and I find the best plan is, in the case of sectional buildings, to take each house to pieces before the chickens are put into it, give it a thorough coating of a preservative on both sides, and especially in the corners, and let it dry for a few days before bolting it together again. A spray pump may save this trouble by getting the fluid well into the cracks, but I doubt if it will do the work so effectually.

The question is frequently asked whether late hatching pays, and the answer must depend upon circumstances. If you have plenty of room and can put a few chickens out on fresh ground in order to give them a fair chance, they should pay very well, especially if you are breeding for show purposes or for table birds, though layers would not be so profitable, because you would probably have to keep them half the winter before they gave any return. But when space is limited and you already have earlier birds to which it can be devoted, late chickens are not desirable. There is still, of course, time to hatch a few chickens of the quick-growing breeds, such as Leghorns, with a reasonable chance of getting eggs by November, but the eggs must be set at once.

Where sufficient eggs have been set breeding-pens may now be broken up, and this is especially desirable where only a few hens are running with a cock and the hens are becoming bare on the cushion. Put the cock into a run by himself, or get rid of him if he is of no particular value, for in such cases it does not pay to keep a male bird till next season, especially as a vigorous cockerel is more likely to fertilise eggs than an old cock.

To revert for a moment to the subject of late hatching, would-be fanciers who have room for a few chickens can very often do a good stroke by buying eggs from successful breeders at this time of the year. Prices are considerably reduced, and as most of the leading breeders have finished hatching, some good eggs may be obtained. A late-hatched show bird is not to be despised, for it comes in towards the end of the season when the others are going off in condition, and it may do good service in the following summer. Many good bargains have been obtained in this way by buying late eggs.

Now is the time to market early chickens and ducklings. Do not forget that you can make more of chickens by selling when they are between three and four months old at this time of the year than by keeping them another two months, and if you are not able to fatten them, there are plenty of fatteners who would be glad to buy them. Ducklings should be got off by the age of ten weeks or the pin feathers will be growing, and their value will depreciate.

THE POULTRY-KEEPER'S OTHER INTERESTS.

By "HOME COUNTIES."

*Author of "The Townsman's Farm," "Poultry Farming: Some Facts and Some Conclusions,"
"The Case for the Goat," "Country Cottages," &c."*

"Poultry should be only one part of the stock."

—*The Secretary of the N.P.O.S. in the "Cyclopædia of Modern Agriculture."*

DONKEYS.

If I have been asked once, I have been asked half a dozen times what a donkey costs. I believe there is a pretty extensive market in the East-End of London, but it is probable that a buyer who was not a coster would have prices raised for him a bit. I had recently an interesting talk on the subject with a 'bus driver. It might be wise to make a purchase through an intermediary. The worst of donkeys is, that unless they are well-bred and well-trained, they have no notion of pace; but I have repeatedly heard people who have experimented with them speak highly in praise of the humble "moke." As my readers know, it is an old idea of mine that the donkey could be improved a good deal by proper breeding and the use of foreign blood. I see in a little book published lately by two lady gardeners that they have an item in their accounts headed "Donkey," and that the details are:

Donkey and Cart and Accessories	15	4	0
Donkey's Food for eight months	5	3	6
Shoeing of Donkey for eight months ...	0	14	0

The labour involved in grooming, &c., is not counted.

FRENCH GARDENING.

The other day, in going through some allotments, the question was raised as to the possibility of a man doing a little French gardening in a small way. It is not necessary, in order to get some early stuff, to invest in all the paraphernalia of the French gardener. In what, I think, is one of the most practical of the French gardening books—I have three or four on my shelves—Mr. Thomas Smith's "French Gardening" (Utopia Press, 3s. 6d.), there is a special chapter on French gardening for allotment-holders which would meet the case of many poultry-keepers. In another chapter Mr. Smith, who is, of course, the supervisor of Mr. Joseph Fels's farm colony and French garden at Mayland, Essex, shows how, with a little capital, a piece of ground may be worked partly on the French system and for the rest by improved open-air methods. A tremendous lot of rubbish has been written about French gardening; but while, on a larger scale, it must involve the whole energies of those engaged in it, it is possible that many a poultry-keeper might find the production of a certain amount of early produce by a modified system of French gardening fit in well with his other work. The chief thing, it seems to me, is to be sure of the market—a local market, of course. The pull of the French gardener is that, first, with his early varieties of vegetables—and the seeds to be used are now well-known and listed in many catalogues—and second, with his heavy manuring, he gets his things ready a week or two in front of the old-fashioned market-gardener. A man who was near a health resort or a popular residen-

tial town, might well work up a nice connection along with that for poultry and eggs. A sound knowledge of gardening, and a taste for it, are obviously necessary. French gardening is not the kind of thing which can be deputed. It means unremitting personal attention. The heavy manual work may, no doubt, be done by deputy, but the eye of the person pecuniarily interested must be every day upon the crops. In twelve hours, or, even less, many pounds' worth of stuff may be lost. The poultry-keeper complains that he is tied to his holding, but he will not know many holidays when he takes up French gardening. Still, he has to make a living, and as there must be something to go along with poultry-keeping, there cannot be in many cases anything much better than really up-to-date kitchen-gardening.

"P.G.'s" FOR POULTRY-KEEPERS.

Not a few people who want to go and live in the country and specialise in poultry and eggs are depressed by the advice that it is necessary to work in other things with the hens. They feel that skilful attention to the hens will make sufficient demands upon them, and they do not quite understand how they can gain proficiency in other branches of rural industry very quickly. This is an enlightened point of view, especially when the man or woman who is adventuring himself or herself in the country does not possess any great horticultural proficiency. I cannot help thinking that there may be opportunities in such a case in connection with what are euphemistically called paying-guests. Taking town lodgers in the country seems a kind of occupation which must be overdone. I doubt this very much. It is probably a second-rate way of doing it that is overdone. The people who complain that there is not much money in it are no doubt the people who have taken no trouble to study the business. I am perfectly certain that there are lots of people anxious to come for a month into the country with their families, who find a real difficulty in discovering in a satisfactory neighbourhood a place where they can be put up comfortably and properly fed. The feeding of lodgers is attractive to the poultry-keeper because he makes two profits on his produce, and it is not only what his visitors consume while they are with him that brings him gain. If they are well-treated they may very well become customers through the post, and in time bring him other customers. Clever kitchen-gardening, along with poultry-keeping, is obviously a means of making money when visitors are boarded. Here, again, there are possibilities of making a connection for sending stuff to town. The possibilities of making much money by a direct-to-the-consumer trade are restricted by the fact that a connection takes such a long time to get together. But the plan of taking

in paying guests would bring a connection without advertising or other expense.

The kind of guests who pay best are by no means the kind who expect most. Cultivated people nowadays, when they take a holiday in the country, are not exacting in the way of furniture and what used to be called comforts. A poultry-keeper who happens to have, as many have, an old farmhouse or other roomy dwelling, and has rooms to spare, need worry himself or herself very little about fitting up. Walls can be distempered along with the ceiling, and floors can be cheaply stained. The bedsteads can be of the cheapest kind. There are various makes of iron single beds which are quite inoffensive-looking and very cheap, and there are several kinds of folding beds which have attractive qualities. I frequently sleep on a folding-

water-glass eggs. There are even ways of honestly utilising old hens without trying to fob them off as chickens. I am not competent to write on the subject, but I hope some day some lady poultry-keeper, learned on the matter, will write to THE ILLUSTRATED POULTRY RECORD on ways of utilising birds past their first youth. In some parts of the Continent it is customary to cook birds when they have laid their first clutch of eggs. Undoubtedly, French cooks can do marvels with old hens. This is worth writing about, as frequently there are old birds which can be usefully utilised in the pot when little enough would be got by selling them. The higglers are less and less satisfactory to deal with in many districts in the matter of old hens, and one needs a fair number of birds to make it worth while sending them up in a crate to town.



DUCKS IN A FRENCH GARDEN.

(Copyright)

bed made of plain unpainted deal, and a kind of tanned canvas, which is such a shape that it can easily be carried when travelling. The advantage of a bed like this is that there is nothing about it to rust. It can be used for sleeping out, and many people who come to live in the country are increasingly keen on sleeping out in decent weather. The steel mattresses, of course, rust if windows are left open too freely, or if they are used for sleeping out.

OLD HENS.

The possibilities of visitors are endless. It is possible to use up in cooking for them stores of

STERILISED FRUIT.

Another way in which visitors can be made to pay two profits is as consumers of sterilised fruit. While I am sure it still pays in more than one way to make jam at home, the ordinary manufacturers have become so skilful and so conscientious that there is no great sale for jams in competition with them. It is different with sterilised fruit. It can be prepared so easily and so quickly with practice and the best methods, that it can invariably be sold to advantage to private customers, especially when, as in the case of paying guests, they are on the spot, and can take a box away with them. It is quite unnecessary to invest in any elaborate apparatus. I

should not recommend anyone to bother with sterilising in a copper unless it were a very large one; but a big tin, which will occupy the top of the kitchener, is inexpensive and undoubtedly most satisfactory. The bottles are also cheap. There is nothing in sterilising, of course, but filling up the bottles with the fruit, pouring in water to fill the interstices between the berries, setting the bottles in the tin of cold water so that they do not touch one another or the bottom (use a little hay), and bringing them slowly past the sterilising point. Then the caps on the tops of the bottles are screwed down and the thing is done. The sterilising of such fruit as gooseberries is ridiculously easy. No doubt black and red currants take more preparation, but it is in the preparation of the fruit, not in the sterilising, that time is occupied. And the fruit looks so well through the glass as the bottles stand in rows. They always take the fancy of people who have never tried the plan, and would be specially attractive to the poultry-keeper's "p.g's."

ENLIGHTENED KITCHEN GARDENING.

The poultry-keeper who proposes to market produce apart from poultry and eggs, and looks to his garden for it, would do well to give some space to vegetables and fruits which are not grown by everybody. At the Franco-British Exhibition there was a little model garden of a French working man. The space covered was very small, but the number of different things grown in it was remarkable. It is astonishing the sameness of the produce in most English kitchen gardens. Every seedsman's catalogue offers a choice among things which one seldom sees growing, and the interesting thing is that these vegetables are no more difficult to grow than the things usually planted. Experiments in a wider range of garden produce need not be at all expensive. It is no longer necessary to buy full ounces of seed. The days when the penny packet was made the dumping place for old and inferior seeds have gone. There is more than one penny packet firm which offers the best qualities of seeds and in the fullest variety. It must be a revelation to many kitchen gardeners to find what advances have been made in knowledge, and what resources in up-to-date seeds are within their reach at small expense. In the case of fruits, take the one illustration of the loganberry. The plants are quite inexpensive. They grow in the most robust way, and when established are loaded with beautiful large fruits which are wonderfully attractive in bottles. The man or woman who would make money out of his or her garden has to recognise, as people in other commercial lines have to do, that the people who have the pull are those who step out of the jog-trot and do something different to their neighbours.

REVIEWS.

SUCCESSFUL POULTRY PRODUCTION. By J. W. Hurst. London: Rebman, Ltd. 162 pp., 8vo, cloth, 2s. 6d. net. Illustrated.

THIS is one of Rebman's "Successful" Series, and is well and pleasantly written, containing a considerable amount of useful information of an

elementary nature suitable for the smaller occupier, to whom elaboration in the first instance may be misleading. Mr. Hurst rightly points out the differences between farm poultry-keeping and poultry-farming, and that the former offers the greater profits to the many, and to that branch we must look for the bulk of our market supplies. But in this way there must be farming in its broader sense. The fact is more and more realised, and if we can get it into people's minds there will be fewer mistakes made. A case is cited of a farmer whose gross annual returns from the sale of unfatted chickens ranged from £300 to £350 per annum, against an average annual purchased food bill of £120. Perhaps, however, too much is made of the failures. Because a number of grocers appear in the bankruptcy lists, it does not follow that no one should enter upon that trade. And we always hear more of the failures than of the successes. This little work, which is illustrated pleasantly, touches the whole subject slightly but helpfully for the class named above, to whom it can be commended.

DUCKS AND GEESE. *The Reliable Poultry Journal* Publishing Company, Quincy, Ill., U.S.A. 75 cents.

A THIRD edition of this excellent publication has recently been issued. Most of our readers who have taken up the special branch of poultry-keeping with which it deals will be acquainted with the character of its contents, and we need therefore say little more on this point than that the work is thoroughly well got up, most instructively illustrated, and replete with information and advice on everything connected with the rearing, marketing, and exhibiting of ducks and geese. Naturally, the American Pekin receives a good deal of attention, and one of the most interesting articles is an account, by Mr. Grant M. Curtis, of Mr. James Rankin, the "father" of the Pekin duck industry, and of the famous Maplewood Duck Farm. Mr. Rankin himself writes on Profitable Pekin Ducks, Mr. Edward Brown compares the English and American methods of breeding, and the geese section is capably dealt with by Messrs. F. D. Fowler, Prince T. Woods, and others.

POULTRY HOUSES AND FIXTURES. *The Reliable Poultry Journal* Publishing Company, Quincy, Ill., U.S.A. 50 cents.

THIS publication has now reached a seventh edition, and may be commended to poultry-keepers as a catholic summary of the main principles to be observed in house construction, and as a reliable handbook of architectural details. There are excellent articles on Building a Poultry House by Mr. James E. Rice, and under the general heading of "Closed-Front Houses" are valuable contributions by Messrs. Arthur Davis, W. N. Hill, C. S. Green, R. H. Thomas, J. D. W. Hall, &c. "Scratching-Shed Houses" are dealt with extensively in the same manner. Portable houses and exterior and interior fittings are the concluding features of a thoroughly well-illustrated and readable book.



Day-Old Chick Trade in America.

Poultry-breeders across the Atlantic were somewhat late in taking up the sale of what are called "Baby Chicks," but, with the energy which characterises Americans, large plants are now dealing on big lines with the business, which is becoming very popular indeed. The long distances across the Continent have proved no difficulty.

Deaths of Prominent American Poultrymen.

The death is reported, after an operation for appendicitis, of Mr. M. S. Gardner, of Palmyra, N.Y., a well-known and highly respected judge of poultry and associate editor of the *Reliable Poultry Journal*. Also, Mr. Robert C. Tuttle, of Hartford, Conn., President of the Rhode Island Red Club, was killed in a motor-car accident.

Exhibition of Borrowed Birds.

The American Black Minorca Club has expelled Mr. T. A. Faulds on the ground that he had shown borrowed birds at New York and Cleveland in competition for special prizes which the club had offered.

A Novel Egg-Laying Contest.

At the Iowa State Poultry Association Show, held at Des Moines in December last, there was a laying competition, extending over four days, in which were seven pens with six birds in each. These consisted of one pen of Langshans, Rose-combed Rhode Island Reds, Single-combed Rhode Island Reds, White Wyandottes, Silver Wyandottes, Barred Rocks, and Pit Games. The results were: First, White Wyandottes (16 eggs); second, Single-combed Rhode Island Reds (15); Langshans (14); Barred Rocks (13); and Rose-combed Rhode Island Reds (12).

American Poultry Association Meeting.

All the signs are that St. Louis, Missouri, will be selected for the annual meeting of the A.P.A. in

August next, and the poultry men of the Middle West are determined to make it a great success. St. Louis should be a splendid centre for such a gathering.

Chinese Eggs and Poultry.

Shipments of dead fowls from China have been received in Britain, but the quality and condition was not altogether satisfactory. About 350 tons of dried eggs were shipped to the United States. It is stated that seven factories near Shanghai are at work preparing these goods. It is estimated that five hundred thousands of millions of eggs are laid in China yearly, of which two-fifths are available for export, equal to sixteen million tons. If that is true the Yellow Peril is great for cheap eggs used in confectionery.

White Diarrhoea.

Dr. J. H. C. Winston, writing in the *Reliable Poultry Journal*, attributes the prevalence of this disease to lack of green food, and says that "there can be no doubt that with fowls liberal feeding with fresh succulent green food is desirable and necessary to balance a heavy grain and meat ration."

Poultry Census.

The United States Census was taken on April 18, and among the returns asked for were: The value of all poultry raised, amount received from sales of poultry, dozens of eggs sold, and amount received from sales of eggs.

Wingless Chickens.

A report in a scientific paper says that an Illinois breeder has produced fowls with scarcely any feathers on the wings, specially with a view to keeping easily in confinement, as a low fence will restrain them within bounds. That is a very partial manner of looking at the question, if the statement is true, and we may ask, what about the breast meat? For some purposes it would be better if we could get rid of the leg muscle.

The King of the Belgians.

His Majesty the King of the Belgians has graciously accepted a copy of the "Report on the Poultry Industry in Belgium," recently published by the National Poultry Organisation Society.

Railway Enterprise.

The New York Central Railway Co., which serves a vast area from New York to Niagara, is proposing to establish experimental farms throughout the State as examples of what can be done. There are many derelict farms in New England capable of cultivation if manured and well managed, and it is with the object of bringing people on to these and unoccupied districts that this new departure is designed.

Fortunate New York.

An exchange says that the New York State is, through its colleges and experiment stations, receiving in grants for poultry-work alone no less than \$90,000 (£18,000)—nearly four times as much as in the whole of the United Kingdom.

Co-operation in United States.

Farm Poultry says that co-operation "is developing conspicuously in two of the districts of the Massachusetts State Poultry Association—the third district, which includes the South Shore soft roaster section, and the seventh district, where activities centre about the meetings held monthly at or near Fitchburg. . . . How far the movement will go remains to be seen. From what we learn of co-operative sentiment we expect to see it make considerable progress."

A VISIT TO ONE OF THE DANISH BREEDING-CENTRES FOR POULTRY.

By W. A. KOCK

(Consultant to the Danish Society for Profitable Poultry Culture).

IT was a fine morning when I left Silkeborg Station, situated in the middle of Jutland, with the purpose of visiting Mr. Lange, who is the holder of various breeding centres for poultry. Mr. Lange's poultry-farm, "Søholt," consists of nearly sixty acres of land. The soil is light, and the farm is well protected by a rich spruce and pinewood plantation, one mile from Silkeborg Station. Besides different kinds of poultry, the stock includes four horses, two cows, and a number of pigs, the breeding of the latter being extensively practised.

On this breeding centre are nearly 200 Brown Leghorns, of an attractive and homogeneous appearance, the birds being of medium size with moderate combs. In a large field planted with grass are runs enclosed for the different breeding-pens. Some of these runs are sown every autumn with rye. The houses are of cheap but very practical construction. They are built of wood with a pasteboard covering outside, and consist of two departments—a sleeping room and a scratching-shed, well supplied with windows on the south side. The glass of the

windows is very easy to remove and replace, and they work easily in their grooves or lists. In the scratching-sheds, which are twice as large as the sleeping-rooms, the fowls are fed with corn in bad weather. The floor consists of light, sandy earth, covered with straw or dry leaves, and the corn is scattered over this.

On the first of every November, sixty of the largest and finest pullets are taken out and put into a special poultry-house, with a large run.



EMBDEN GEESE AT SÖHOLT. [Copyright.]

These birds are numbered by means of leg-bands, and are trap-nested every day for a year—that is to say, until the following October 31. The best of them—those having a laying average of 150 eggs and more—are used in the breeding-pens the next year. At the same time, special attention is given to the colour, size, and strength of the egg-shell. The average weight of the eggs is 12 kvint apiece. On one of the walls of the poultry-house is placed a schedule marked with the numbers of the hens and the days of the month, and on this schedule is noted down every day, as soon as the hen is taken from the trap-nest, the number of the hen, and at the same time the number is marked on the egg. The results are entered in the account-book of the poultry society to which the breeding centre belongs.

In the hatching season the eggs from the individual hens (of course, only the best of them) are set under special hens, and when the eggs are hatched, the chickens are toe-marked. In this way the owner of the breeding centre can at any time distinguish the hens' progeny.

Brown Leghorn cockerels alone were used last year in the breeding-pens at "Søholt." All the best hens are used for breeding in late years. It is well known that the laying powers commonly decrease from year to year; but it would seem from the experiments undertaken in the centres that the offspring laid as well whether it was bred from a two, three, or four-year-old hen. The investigations were undertaken with several hens in five years. Mr. Lange uses dry food only. Twice a day, morning and afternoon, the hens are fed with a mixture of wheat, barley, and Indian corn.

Steam-boiled bone and meat offal, and in the winter-time beet, is fed in the middle of the day.

Near the farm are some small but deep ponds, where the Indian Runner ducks and White Embden geese have their abode. The ducks are imported from one of the best breeders of this variety in Germany, and the best of them have laid 150 eggs in the year. During recent years many of these ducks have been distributed throughout the country for pure and cross breeding, as the variety is a good all-the-year-round egg-producer. Among the Embden geese, I saw many birds of good type and size. Four ganders and twelve geese are kept

rail in wagon-loads from Sofia, the centre of exportation for Bulgaria, and are bought up *en route* through Austria-Hungary and Germany, any surplus going on to Antwerp and London." The values of exports have grown from £364,507 in 1905 to £459,300 in 1907, of which last-named £254,905 were taken by Germany.—(Vice-Consul Toulmin.)

CHINA (Kiungchow, Hoihow, Island of Hainau).—"Poultry and eggs show a considerable fall. These are produced generally throughout the island, but eggs are, naturally, sent to Haikow for export from the adjacent districts only. Eggs fell from 11,933,036, value £11,783, in 1906, to 7,243,260,



WHITE INDIAN RUNNER DUCKS AT SÖHOLT.

[Copyright.]

for breeding, and Mr. Lange told me that the best of his geese laid 58 eggs last year, and that the average was 31 eggs; further, that last year there were more than 200 goslings bred, some of which were sold, at ten or twelve weeks, as "green goslings."

NOTES ON THE POULTRY INDUSTRY FROM CONSULAR REPORTS.

THE following extracts are taken from the Annual Series of Diplomatic and Consular Reports published by the Foreign Office and Board of Trade, and are interesting as showing the growing importance of the poultry industry:

BULGARIA.—"The export of eggs continues to form a profitable and ever-increasing branch of the Bulgarian export trade. These are dispatched by

value £7,062, in 1907. It will be seen that the value is less than 2s. per 100. Poultry fell from 460,790, value £18,838, in 1906, to 186,230 value £6,587, in 1907, which works out at about 8d. each."—(Consul G. W. Pearson.)

DENMARK.—"The Denmark Co-operative Egg Export Association has the same number of circles as in 1906—viz., 500; but the number of members has increased from 33,000 to 40,000. There are now ten packing stations, against nine in 1906. At the same time the price the members have received per lb. of eggs has gone up from 5½d. in 1906 to 5¾d. in 1907."—(Consul L. C. Liddell.)

EGYPT.—"At present both fowls and eggs are scarce in Egypt. There is no prospect of poultry-farming in this country until the character of the local fowl typhus is discovered. Even native fowls succumb to this disease. Death is sudden, and without any previous symptoms. The problem is a national one, and is too grave and pressing to be left uninvestigated." In 1907 the value of eggs exported from Alexandria was £E99,499, of which

£E83,687 were sent to the United Kingdom.—(Vice-Consul Greig.)

FRANCE (Honfleur).—"In 1907, 272 tons of eggs were exported, of which six tons were Russian, 244 Italian, and 11 tons French."—(Consul-General H. L. Churchill.)

ITALY.—"The greater consumption of eggs in Italy itself—where prices have almost doubled in the last two years—has considerably reduced the export." The value of eggs exported fell from £2,258,557 in 1906 to £1,600,053 in 1907, a reduction of £658,504. On the other hand, poultry increased from £530,153 in 1906 to £573,880, an increase of £43,727."—(Assist.-Sec. A. Akers-Douglas.)

MOROCCO.—"In spite of the troublesome times through which this country has passed, the export of eggs has grown. In the consular district of Casablanca the total in 1907 was 39,850 cwt., value £82,750, an increase of £16,854 over 1906. These are principally sent to the London market. At Mazagan eggs rank second in exports."—(Consul Madden.)

NETHERLAND.—"The price of eggs varied from 2fl.90c to 8fl.70c. (3s. 2d. to 14s. 6d.) per 100."—(Consul Turing.)

NORWAY.—"No exports of eggs or poultry are recorded from Norway; 139 tons of eggs were imported, chiefly from Germany and Denmark, the value of which is not stated."—(Consul Drummond-Hay.)

ROUMANIA.—"In poultry (turkeys and geese) there is some trade with Germany, which probably resells to us (the United Kingdom) some of its purchase, and Roumanian eggs apparently go to the United States through Hamburg; they can be purchased in summer at from 2s. 6d. to 3s. 4d. per 100 wholesale (actual hundreds, not "long" hundreds) in Moldavia, and there are districts in Wallachia where the retail price is from 2s. to 3s. per 100 in summer; but in the latter case it would be necessary to create the trade, and it may be doubted whether this country could seriously compete with Russia in the egg trade."—(Consul Wardrop.)

RUSSIA.—"The egg trade showed less favourable results, the value of this article exported in 1907 attaining £4,814,420, as compared with £5,269,250 in 1906" (Vice-Consul C. Mackie); and "The failure of the crops in the Volga districts, which supply the bulk of the eggs for export, the consequent high prices demanded by the producer, and the low prices ruling in the western markets, all tended to arrest business and reduce the exports, which were lower than they had been since 1902."—(Consul Woodhouse, Riga.)

SWEDEN.—"The production of poultry and eggs has developed greatly, and appears to become a most important item to the agricultural and small farm population of this district. Egg collecting and packing stations have been established and associations formed for the protection of mutual interests and the exchange and spreading of information on the subjects of sale, export, and most advantageous markets as well as co-operative purchase of requirements. Altogether, these associations are conducted with best principles, foresight, and ability, and have already shown excellent results."—(Consul John Duff, Gothenburg.)

TURKEY.—"This branch (eggs) is considerably on the increase. Eggs are collected by peasants, by

whom they are sold to small merchants in quantities varying from 100 to 500. These again sell to larger dealers, by whom they are packed in cases of ten gross each for export. No attempt is made at grading. The period of export may be divided into three seasons, of which the first is from February to April, the second from May to August, and the third from September to January. They are exported by rail in trucks containing 110 cases each. . . . Trade would appear to be principally with the United Kingdom, Germany, France, and Austria-Hungary." In 1907 the total export was 13,200 cases.—(Consul Major Samson, Adrianople.) "9,700,000 eggs, worth £21,400, were exported (from Salonica) during 1907, of which 3,100,000 were sent by sea to Greece and Marseilles, and 6,600,000 by land to Germany and Austria-Hungary."—(Vice-Consul E. H. Mulock.)

UNITED STATES.—"The highest special quotation for finest eggs in Chicago was 11s. 8d. per 120, and the lowest 5s. 10d., against 14s. 2d. and 6s 3d. in 1906."—(Chicago, Ill.) "The production of the State for 1907 was eggs and poultry, £1,000,000."—(South Dakota.)

EGG-PRODUCTION ON A WHOLESALE SCALE.

IN our November, 1909, number Mr. T. F. McGrew described a large egg farm in the State of New Jersey, which he supplements by the following interesting statistics:

"Thinking that you may be interested in results that have been obtained at the Rancocas Poultry Farm, Brown's Mills in the Pines, N.J., I am sending you a copy of the laying records for two years. These records show the actual number of eggs gathered and carried into the shipping room, all the eggs from White Leghorn hens and pullets, about 40 per cent. hens.

Monthly egg-production, 1908-9.					Daily Average.	
			1908.	1909.	1908.	1909.
January ..	..	..	29,192	27,285	943	880
February ..	..	..	36,226	43,174	1,249	1,542
March ..	..	..	49,436	65,881	1,595	2,125
April ..	..	..	48,888	72,785	1,630	2,426
May ..	..	..	45,559	71,915	1,470	2,320
June ..	..	..	37,015	59,468	1,234	1,972
July ..	..	..	36,221	51,836	1,169	1,672
August ..	..	..	27,383	40,696	883	1,313
September ..	..	..	16,519	30,002	551	1,000
October ..	..	..	11,072	11,818	357	381
November ..	..	..	10,260	16,435	342	543
December ..	..	..	14,302	29,689	461	958
Total ..	..	..	362,073	520,984		
Total production ..	..	..	..	..	1908.	1909.
Average monthly production ..	..	..	..	..	30,173	43,815
Average weekly production ..	..	..	..	..	6,295	9,991
Average daily production ..	..	..	..	..	990	1,427
Average number of hens ..	..	..	..	..	2,896	3,895
High daily record ..	..	..	..	..	1,832	2,652

The average per hen for the two years are as follows:

1908 ..	...	...	...	144.66
1909 ..	...	...	...	133.5

EDITOR I.P.R.

EGYPTIAN EGG OVEN (MAMAL EL FIRAKH).

Notes made by Harold Jefferys, after visiting an Egg Oven belonging to a Copt named As-kulla, at a small village about thirty miles north of Aswan.

THERE is usually considerable difficulty in persuading an owner of a mamal el firakh to show a foreigner, or even an Egyptian, over one of these primitive incubators, though they are quite numerous and are found throughout the Nile Valley from Alexandria to Aswan. The secret of this structure and management is carefully guarded. The hatching of chickens by this method is an important industry. It is almost entirely in the hands of the Copts, who make quite a mystery of the whole process.

The "ovens" are worked only from February to May each year. The one visited consisted of four hatching chambers, each of these chambers, about four by four yards, being capable of holding up to 6,000 eggs at a time, and accommodating each season about 180,000 eggs. When the eggs are first put in the hatching chamber they are often piled up four or five deep, but are afterwards spread out in a single layer, this never later than the tenth day. The eggs are turned three times daily. On the fourth or fifth day they are tested, and all the infertile ones are taken out and sold for human consumption. The testing is done in the upper chamber, which is dark, each egg being held up in a ray of sunlight, which comes through a hole

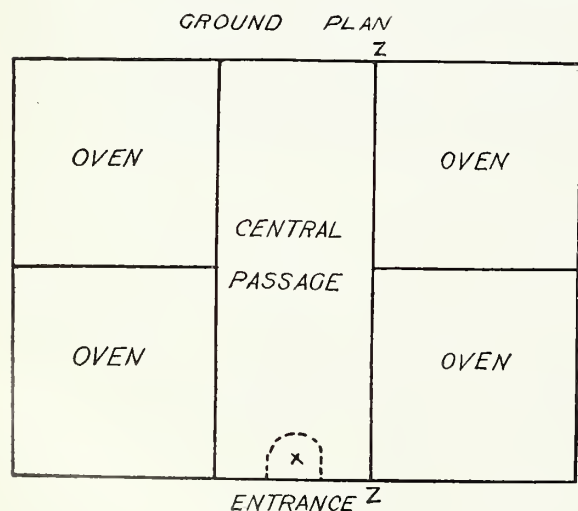
in the dome roof made for this purpose. Usually one-quarter to one-third of the eggs prove infertile. It is said that very few which are left in after this first testing fail to hatch.

The chicks hatch between the sixteenth and twenty-third days, and it is usual to attempt to regulate the temperature so that the chicks may hatch out on the twenty-first day. The temperature is regulated by manipulating the fire (often the fire is allowed to go out for a few hours) twice each day and by regulating the ventilation. Testing is by the hand and by placing the eggs on the eyelid. A thermometer seemed to be quite unknown and apparently unnecessary. No artificial moisture is provided, no pans of water were found in either the upper or lower chamber, neither are the eggs ever sprinkled with water.

The owner of the egg oven buys eggs at from six to ten for one piastre (one piastre—about two-pence halfpenny) and sells the chickens at from three to five for a piastre. Another arrangement is sometimes made. A farmer brings eggs, and the owner of the "egg oven" gives him forty-five to fifty chickens for every hundred eggs. Immediately the chicks hatch, they are taken out from the hatching chamber and placed in a cooler, well-ventilated place to dry, and are never fed until the third or fourth day after hatching. They are said to travel best when dispatched to purchasers on the third day after hatching, and are never fed before being dispatched.

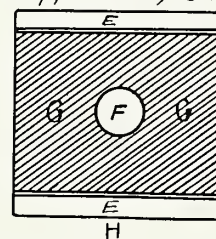
The fuel usually used is wheat or bean straw, chopped and mixed with a certain amount of animal manure. The upper chamber is consequently full of choking smoke, and there is always a lot of

MAMAL EL BEID



PLAN OF UPPER CHAMBER

Floor under E.E. This one inch. Do under GG Thick and supported by two arches of mud bricks.



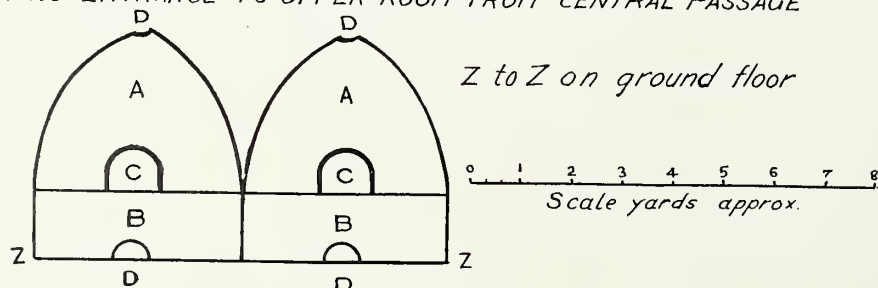
E. Trough for fire. F Entrance to Oven.

G. Floor of mud bricks.

H. Entrance from Centre Passage.

ELEVATION SHEWING ENTRANCE TO UPPER ROOM FROM CENTRAL PASSAGE

- A Upper room*
- B Lower room or oven*
(Hatching Chambers)
- C Entrance to upper room*
from central passage.
- D. Ventilators*



smoke in the hatching chamber. The mud-brick walls are made very thick, and doubtless retain the heat well and prevent sudden changes of temperature. Every time the eggs are turned care is taken to remove those which have been immediately under

the fires, and place them in the centre of the chamber; this is said to be a most important point.

The mamal el firakh described is quite a small one. It is said that many consist of from ten to twenty hatching chambers, each four by four yards.

COLONIAL NOTES.

Foreign Eggs in Canada.

High prices have been prevalent everywhere, in all countries. Montreal, Canada, is an example. The *Canadian Poultry Review* states that new-laid eggs were retailing in that city at 1s. 8d. per dozen, and supplies were being brought in from the State of Iowa on the West and Russia on the Far East, all of which realised good rates. It might be expected that the French farmers of the Province of Quebec would be able to supply the local needs. As our contemporary states: "We, in Canada, if we do no more, should be ready and able to supply the demands of our own great country for fresh eggs—and lots of them."

Railwaymen as Pioneers.

In newer countries, perhaps in older ones also, railway servants frequently act as pioneers in the advancement of poultry-keeping. With us station-masters are often keen poultry-breeders, and have done their share in helping forward the industry. In several of the Colonies and dependencies the central authorities and railway companies might utilise with advantage the services of these officials, who could often use the embankments and side lands as runs, and be the means of introducing new breeds.

Poultry in Canada.

In a paper read at the Ontario College Farmers' Institute, Mr. Peter White, of Pembroke, Ontario, estimated the number of hens in Canada at 25,000,000.

Exporting Fowls.

The *South African Poultry Journal* calls the attention of exporters to the essential necessity, in their own interest, of shipping in good and roomy coops, and says rightly that it pays the exporter to attend to this question. If sent in inferior-class coops, the birds look inferior also on arrival. The following letter appears in a recent issue of our contemporary:

Sir,—I am directed by my committee to bring the matter before you of the methods adopted by some exporters in England in sending out their stock. We feel it our duty as a club with its headquarters at a port where a large proportion of the poultry for Natal, the Transvaal and O.R.C. lands to take this matter up. Overcrowding and inadequate accommodation both as regards the height and size of the crates is frequently seen, and if possible such cruelty should be prohibited.

We are communicating with the head office of the Society for the Prevention of Cruelty to Animals in London, asking them if possible to inspect all consignments of poultry before dispatch, and we would be glad if all your English exchanges will bring the matter to their readers' notice so that ex-

porters will know their shipments are being closely watched.

Thanking you in anticipation of your support in this matter, I am,

H. M. FLETCHER.

Secretary, Durban and Coast Poultry Club.

Poultry-Farm Business.

Mr. W. H. Card, at the Ontario College Farmers' Institute, made some points which all who go in for the Poultry Industry should remember.

Luck—the only luck I ever found is pluck.

Philosophy is the seasoning that makes the whole thing palatable—a sort of Christian Science.

Business tactics is the real secret of success.

A *practical* man does not always mean a *business* man.

In starting a poultry farm you want enough to begin, keep clear of debt, and live a year.

Keep books, and watch your income and outgo—one as much as the other.

Don't sell all the best stuff to market. Eat some of it yourself.

A poor man's business with a rich man's tastes means failure every time.

The art of selling goods consists in getting most cash for least goods.

Turn into cash all non-interest paying goods.

Advertise. Write articles about poultry for your local paper.

Don't experiment—nothing new under the sun.

The first two years of your life on a poultry farm you'll know more about poultry than you'll ever know afterward.

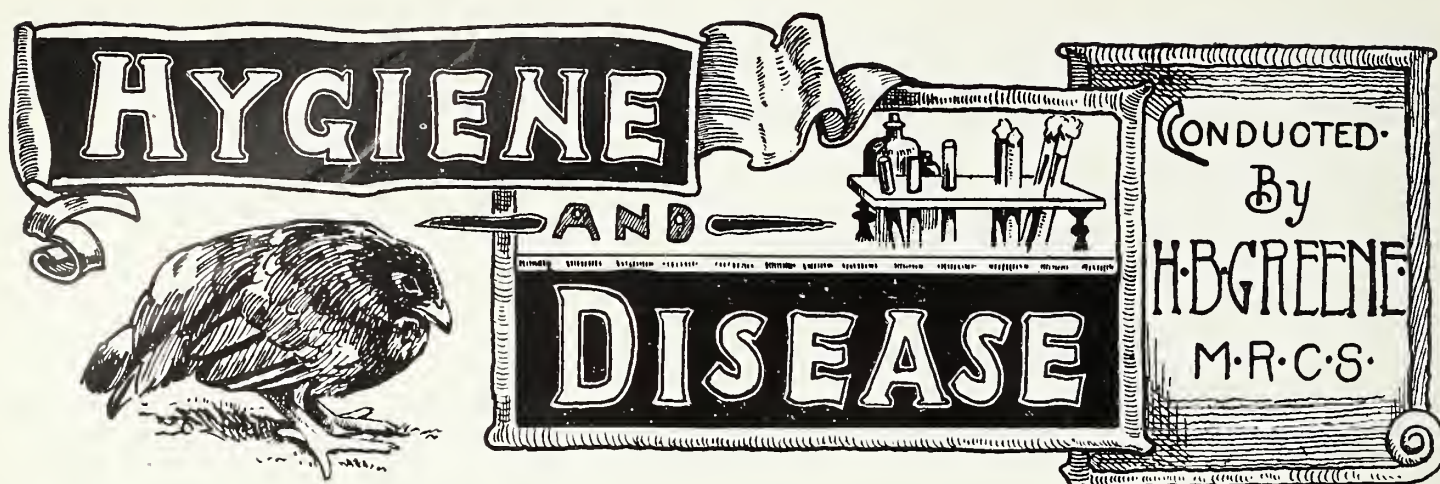
South Australia.

The annual report of the Minister of Agriculture for the year ending June 30, 1909, contains a mass of interesting records of the work done in promotion of the poultry industry in that Colony. Valuable influence is exerted at the poultry stations, at one of which 1,500 visitors were received during the year. The various experiments made are indicated, and it is shown that the average values per dozen of eggs were 7.69d. in 1905 and 9.8d. in 1908. The Chief Inspector of Stock tells of a valuable part of the work:

Good work is now being done under the poultry regulations under the Stock Diseases Act of 1888. Mr. D. F. Laurie, the poultry expert, reports having dealt with fifty-four owners' premises on which there was tick infestation or diseased poultry, and that many of these premises are now free from disease, and others are being cleansed. The auction marts, market and poultry salesmen's coops are visited at frequent intervals, and are now free from poultry pests.

New Zealand Eggs.

Reports state that shippers are well satisfied with the results of eggs sent during the past season to London, and it is intended to do more in the coming year. The quantities as yet are a mere bagatelle.



POST-MORTEM EXAMINATIONS.

We have made arrangements by which post-mortem examinations of poultry and game can be effected for our readers upon the following conditions :

1. *The specimen is to be forwarded postage or carriage paid and securely packed to "Biologist," 297, Trinity-road, Wandsworth Common, London, S.W.*
2. *The fee of 2s. 6d. (stamps will not be accepted) must be remitted with each specimen and a letter giving particulars of feeding and housing, or any symptoms which were observed before death.*
3. *Birds should on no account be addressed to the office of the paper. If forwarded there they will be returned to the sender.*

It is recommended that specimens be dispatched by parcels post, where practicable, and as soon after death as possible. A reply will be received by letter, defining the disease, its cause, treatment, and prevention.

Infective Diseases.

It becomes more evident, as time goes on, that the majority of poultry diseases, and certainly those most destructive to life and least amenable to curative treatment, are of bacterial origin. In other words, the origin and course of the really formidable ailments of the poultry-yard depend upon the presence of microbes which either invade the subject through the medium of the blood, or concentrate upon some one particular organ or locality of its body. And, moreover, once they are established, the rapidity with which they multiply and spread from host to host soon brings about a situation calculated to dishearten the most experienced of poultry fanciers. Especially is this so when attention has been centred upon an attempt to cure individual cases of infective diseases before having first ascertained the nature of the specific infection; for it is only by knowledge of this that a successful attack can be made, and contagion checked at the very source of its introduction. Therefore in setting about the subjection of any poultry ailment in which the signs suggest disease in epidemic form, the most important steps to be taken, after isolation of the stricken birds, are to define the malady and cut off those approaches by means of which it may reasonably be suspected of having gained access to the stock.

Paths of Infection.

To identify a poultry disease is not always an easy matter. Symptoms, even when most carefully

noted, are by no means invariably conclusive, and a post-mortem examination, aided by the microscope and a bacteriological investigation, may all be necessary before a correct judgment can be formed. Some days, perhaps, may elapse before these inquiries are brought to a final issue. Meanwhile the intervening time will be well spent, and a clue to the cause of the mischief sometimes discovered, if the chief channels by which infection usually travels are carefully gone over one by one. Such an inquiry is, in fact, nothing less than a thorough overhauling of the hygienic conditions under which the poultry are fed, housed, and cared for. If made sufficiently comprehensive in scope, the weak joint in the armour will very often be revealed, and give a hint of the point at which infection has entered. Some of these sources of danger may here be appropriately mentioned. The food itself may be in a state of decomposition when given, harbouring bacteria and their poisonous products, as happens in ptomaine poisoning, or develop these noxious qualities if allowed to lie about the run; or good food thrown upon ground tainted by the excreta of sick fowls, or even of rats suffering from disease or poison, is another medium. Tuberculosis, and probably the disease induced in rats by virus, are instances of this type of dissemination. Soil saturated with sewage, raked-up manure, and offal acting also after ingestion, are responsible for many septic diseases, a notable example of which is Klein's enteritis of fowls. Impure and stagnant water is a prolific cause of many others, such as chicken cholera and dysentery, and in this particular connection it is likely that future research will prove that many poultry diseases of which at present little is known arise from the protozoa and amœbæ present in water. Then there are the air-borne micro-organisms accountable for some of the obscure epidemics met with among brooder-reared chicks under conditions of imperfect ventilation, and which may even be suspected of spreading within the incubator itself.

How Disease May be Spread.

It often happens that infection arrives in a yard through the purchase of a diseased bird or pen of birds, and an instance of this is within the knowledge of the writer where contagion was introduced simultaneously into three establishments in the North, South, and West of England by the sale of fowls from a dealer in an Eastern county. Nor is the introduction of disease by a bird returned from

a show altogether unknown, although it is to the credit of those who manage the very numerous undertakings of this kind that take place every year that such incidents are rare. Once contagious disease has appeared in a fowl run, the demand for immediate isolation of all sick birds is obvious, but it must not be forgotten that the excreta are capable of being transferred from pen to pen on the boots of the attendant, and so may be explained how it comes about that occupants of runs at considerable distance from one another fall victims in succession. Lastly, there is the danger, especially present in roup and in skin diseases of fowls, that contagion may be conveyed on the hands of those who tend or handle ailing birds and subsequently attend to the healthy remainder. The risk, moreover, is not confined to the fowls, for unfortunately evidence is not wanting in support of the views that several of the last-mentioned diseases are intercommunicable in birds and man. We do not pretend that we have enumerated all the possible sources through which infection can arrive in a poultry yard. But if such as have been mentioned above are borne in mind, and considered in conjunction with the particular circumstances of a poultry epidemic, they may, we hope, be of service in assisting to form a definite conclusion as to its origin.

The Remedy.

Immediate isolation of sick, the discovery of the nature of the infection and its suspension, combined with thorough disinfection of the tainted premises and strict observance of cleanliness in every detail, comprise the preventive measures necessary in any poultry epidemic. They will, if carefully put in force, do very much towards suppressing it. Curative measures—and it is often not advisable to attempt a cure—will depend upon the kind of disease, the number of fowls involved, and the accommodation and facilities for treatment at the disposal of the owner.

THE FOWL TICK.

By C. W. HOWARD, B.A.

(Late) Government Entomologist, Transvaal Department of Agriculture. (Leaflet No. 5.)

AMONG the thirty species of tick which are now familiar to specialists in South Africa there is one which is seldom noticed, and which, when found, is usually considered to be something other than a tick. This is the fowl tick (*Argas persicus*). We often hear of fowls dying in a flock at the rate of eight or nine a day. The fowls seem free from disease, and no cause can be found for such an epidemic. A post-mortem, however, reveals the fact that no, or very little, blood is left in the fowl, and, upon searching the cracks of the fowl-house, the cause can easily be found in the numerous bed-bug-like creatures, hiding away from the daylight, and each swollen to its fullest extent with blood. The fowls have died simply from loss of blood which these ticks have sucked from them. It is also thought that this tick may transmit some infectious disease of fowls, under certain circumstances, but this is not common, and no absolute proof exists.

Argas persicus is very common throughout South

Africa, and also occurs in Australia, India, Southern Europe, and Persia. In the latter country it was first found and described. Early travellers in Persia tell wonderful stories of the prevalence of these creatures in the houses, making it necessary for the inhabitants to move frequently in order to escape its attacks. The bite was supposed to be poisonous and always to result in death. In South Africa it bites people when occasion offers, but, beyond the annoyance caused, no harmful results seem to follow. I heard, not long ago, of a Cape cart which had been left in an old fowl-house and had become so full of fowl ticks, which hid under the upholstery, that no one was able to ride in it afterwards.

The usual animals attacked are fowls, geese, ducks, turkeys, pigeons, and, occasionally, man. Ostriches and canaries have also suffered on a few occasions.

The fowl tick resembles a bed-bug very much in shape, a fact caused probably by its mode of life, for they both conceal themselves in narrow cracks, making a very flat body necessary. The outline is elliptical, and, when unfed, they are of a light brown colour, with a lighter, almost translucent border from which translucent lines radiate toward the centre of the body. When fully fed, the body becomes swollen and of a dark bluish-grey colour. Unlike the cattle ticks there is no hard, shiny shield upon the back of this tick next to the head, and, in addition, the head is not on the front edge of the body as with other ticks, but on the under surface, just in front of the first pair of legs, with the front end of the body projecting over it like a hood. The whole body of the creature is covered by a soft skin. When examined carefully, both the surfaces are beautifully marked with small shiny pits arranged in regular rows, mostly radiating from a central point. In addition, the margin is set off on both upper and lower surfaces by a rim of rectangular plates forming a very sharp, thin edge all about the body.

The eggs are small, dark, reddish-brown, shiny affairs, almost circular, and about 5 mm. (.02 inches) in diameter. These are laid in cracks and crevices about the fowl-houses and under the bark of trees where fowls roost. As many as 120 eggs are laid at one time. These eggs hatch in from one to six weeks, depending upon the temperature.

The larvæ are quite different from the mature ticks. The body is still flat, but they are nearly round in outline, and the shiny pits are lacking; the mouth parts project beyond the front of the body, and there are only six legs, whereas the adult has eight legs. In colour they are almost translucent, with the exception of a slightly darker spot near the front end. This little larva finds a fowl or other host and inserts its beak to feed. At first it feeds slowly, but at the end of the third day begins to imbibe rapidly, and by the fifth or sixth day drops off. It at once seeks a protected crack in which to hide and digest its food, where, after about twelve days, it sheds its skin and appears in a new form. It is now known as a nymph, and appears exactly like an adult, except in size and in the absence of the external genital opening. From now on, it feeds only at night when the fowls are at roost, and only remains on for a short time, usually from half an hour to two hours, during which time it engorges, and then drops off and seeks shelter again. In

each interval it sheds its skin, and, after the fourth such visit, is mature. Thereafter, it visits a host about once a month, spending the interval in digesting the food and laying eggs. It is known to feed at least six times and deposit at least six lots of eggs before dying.

The vitality of the adult ticks is remarkable. They have been known to live in a vacant fowl-house as long as thirty-seven months without food, and still to be capable of oviposition after a good feed, while they have survived twenty-seven months in an air-tight box. Larvæ have been kept eight months without food, and still survived.

The ordinary method of combating bed-bugs with hydrocyanic acid gas is entirely ineffectual with fowl ticks. In the first place, the fowl-house is usually very open and not suited to such treatment, and, besides, by actual experiments, we have found that a dose three times the strength used for the bed-bug (3ozs. of cyanide to 100 cubic feet of space) kills only about one-fifth of the ticks.

A great many schemes have been devised by which the roosts are isolated from the walls, by inserting the ends or supports in tins of paraffin or other offensive fluid to prevent the ticks reaching the fowls when at roost, but all are more or less

cumbersome or expensive. It is far simpler to spray or wash the interior of the fowl-house with pure paraffin, taking special care to have it penetrate all the cracks. Paraffin is very deadly to all small animals, the smallest drop quickly penetrating the body and causing death. Where fowls roost in trees and the bark of the trees furnishes hiding-places for the ticks, the rough bark should be pulled off and the trunk sprayed lightly with paraffin. If this is done on a bright day and a very fine spray of paraffin is used, it will evaporate very rapidly before it has time to injure the tree.

It is often more convenient to paint the house, inside, with hot tar or hot whitewash. These substances fill up the cracks and smother the ticks and eggs hidden in them. Jeyes' fluid or corrosive sublimate mixed with the lime would make it more effective. This washing or spraying should be repeated once a week for two or three weeks in succession in order to destroy the larvæ which cling to the fowls several days. It is very important that all fowls brought into the flock should be quarantined for a week or ten days. In that time any larval ticks clinging to them will drop off, and the boxes in which they were quarantined should then be destroyed in order to kill such ticks.

NOTES FROM CORRESPONDENTS.

IRISH NOTES.

By MISS MURPHY.

ONE of the best-known Southern poultry judges has just passed away in the person of Dr. J. M. Cuffe, of Dublin. An excellent all-round judge of poultry, his services were in considerable request as judge at poultry shows, and quite lately he was elected one of the Irish Fanciers' Association judges.

The Cork Spring Show took place on the 5th and 6th ult., Miss M. Macquillan acting as judge. The display was small in numbers, owing in all probability to the time of year, but still more to the fact that the I.F.A. cups were not for competition. There is a rule that where the prize-money is below twelve shillings (first prize) there can be no cups. There is rarely a big entry at a non-cup show.

A most interesting report of farm poultry-keeping comes from Miss Thornton, poultry instructor for co. Waterford. The account of expenditure and income was most carefully kept by the owner of the birds, and her balance-sheet at the end of 1909 showed a net profit of £30 0s. 3d. from a flock of 50 hens, 4 geese, and 15 ducks. The produce was all sold for consumption, with the exception of one Aylesbury drake, and five ducks sold for £1 5s. the lot. The poultry had the run of the farmyard and were fed chiefly on Indian meal, pollard, and a little oats. The egg average worked out at 117.56 eggs per bird, a fair average for a farm, and quite as good as is obtained from more expensive food in many instances.

The rearing season that has just closed will long be remembered for its exceptional severity. Chicken rearing was most difficult, and I do not remember

having heard so many complaints of poor hatching results with incubators. One operator, who in former years averaged 90 per cent., was this year very pleased to get 65 per cent. of strong chickens. The complaints were not confined to the South, but seemed to be the rule everywhere. Spring chickens should make high prices, as they are pretty certain to be scarce.

NOTES FROM WALES.

By A. T. JOHNSON.

THE fine dry weather which, up to the time of going to press with these notes, has prevailed since Easter, has had a wonderful effect upon both the hatching and growth of the chickens. Indeed, the season, which on account of the persistent high winds and rain two months ago seemed so hopelessly backward, now promises to be one of the best we can remember. There has been the usual east wind, of course, but in the sheltered valleys of the West it is seldom followed by any evil results. Early chickens are scarce all over the country, and the home supplies for the Whitsuntide markets will, as usual, have to come from over the border. But there are lots of good April birds about, and it looks as though Taffy were at last beginning to realise that if he wants eggs in autumn and winter he must "get a move on" with his hatching while the spring is young. There is not the slightest doubt in my mind that the "Record Poultry Book" in Welsh will prove to be the strongest and best stimulant which the native poultry-keepers of Wales have yet had. The Taffy dearly loves his language, and he rarely gets an

opportunity of reading anything of a practical kind in his mother tongue. Furthermore, he has in his nature a large share of thriftiness and patient perseverance with small things, which are always such useful adjuncts to every poultry-keeper's equipment. If, therefore, he modernises his methods by the help of this little book and takes full advantage of his mild climate, there is no reason why Wales should not become the most important—instead of remaining the most apathetic—of our home countries in poultry production. For the most part the Principality is a land of warm valleys, well-drained slopes, and sheltering hedgerows and woods—a veritable paradise for poultry-keeping—as well as being a country of small holdings, and it is only too obvious that if Wales were given the same advantages as Ireland in this matter, she would soon outstrip the latter country as a producer of poultry and eggs. Now that the Agricultural Organisation Society has made a move in the matter, perhaps we can anticipate some State assistance in the near future.

Arrangements for the summer shows, which are such a feature in many parts of the Principality, are well to the fore, and, from what I have heard so far, it would seem that a general improvement will be realised. The Challenge Trophy given by Mr. F. J. Wyndham, of Yokohama fame, for competition among members of the Northern branch of the Poultry Club at shows held under "rules" will, no doubt, prove to be a useful stimulant to the Fancy generally. Of course, the summer is by no means the best season for poultry shows, but as these events are usually held in connection with agricultural societies' meetings, and the latter are dated with the object of securing the patronage of the summer visitors, the fancier must needs make the best of it. Poultry shows, pure and simple, do not pay in Wales—except in some parts of the South—and the best attempts to run them successfully invariably fail from a "gate" point of view.

YORKSHIRE NOTES.

By F. W. PARTON.

IN some of the more sheltered parts of the county chickens are fairly numerous, and hatching results, on the whole, may be regarded as satisfactory. There are, on the one hand, a few individual cases where a record season, up to the present time, is reported. On the other hand, there are many complaining that it is undoubtedly the worst season they have ever experienced; that a large percentage of eggs are infertile; and that what few chickens there are appear to be a very weedy, delicate-looking lot. Doubtless the severe and prolonged winter has played sad havoc among poultry, and the weather is an important factor in determining success or otherwise; but too often the weather is held entirely responsible for failure, and were a little more forethought and extra care devoted to the management of the fowls, part of the trouble might be successfully combated. In proof of which I would mention two farms that conspicuously came under my notice. Upon each farm the same class of fowls were kept under parallel conditions, so far as soil, &c., are concerned; yet the one farmer is

complaining of his bad luck in not having any chickens out, while the other is erecting shelters for his eight weeks' old chickens which are now ready to leave their coops.

The White Wyandotte is rapidly gaining in popularity, and is doubtless the favourite fowl in all parts of the county, more especially so in the North and East Ridings; and results amply warrant its prominent position. It is admirably adapted for the cold North Country, and it renders a good account of itself under conditions which do not seem the most desirable for poultry-keeping. It is extremely hardy; forages well; makes a good, reliable sitter and a careful mother; in fact, it possesses the all-round qualifications so desired by the farmer. The Wyandotte is equally good for the man whose methods of keeping poultry are intensive, as it thrives well and rests contentedly in a confined run.

Ducks' eggs are not coming as plentifully as could be wished, and there are very few farmers who have eggs undergoing incubation. Upon Yorkshire farms are produced some of the finest specimens of geese and turkeys; but it must be admitted that they are far behind so far as ducks are concerned. Why this should be so is somewhat difficult to understand. It is no easy matter to convince the average Yorkshire farmer that ducklings ought to be ready in the very early spring, when the demand is at its height and prices are highest. The excuse is always the same—the difficulty in getting the eggs early enough—and undoubtedly this is the critical part of the whole business; but when once this is accomplished, as it has already been done in other counties, Yorkshire may become as famous for its spring ducklings as it is for its hams.

SUSSEX NOTES.

By S. C. SHARPE.

IT may be of interest to some of our readers if I give a short description of the methods adopted by those Sussex higgler who buy such large numbers of chickens. I personally know two men who have never less than 3,000 birds up in the fattening-pens. They will generally collect about 1,000 birds per week, and keep this supply going. Sometimes the birds that are brought in this week would be killed and in the market next week, and these are some of the very best birds which are produced in the world, for they have been reared on Sussex ground oats mixed with skimmed milk from the time they were hatched. This kind of feeding makes the flesh white and of fine texture, and produces the finest bird for eating purposes.

When the higgler gets home with his load, they are taken from the cart crates and placed into coops or pens out of doors, the coops being put up about three feet from the ground. They are generally fixed against a high hedge or, when this is not possible, artificial shelters are made up of brushwood cut about seven or eight feet long. This gives the birds plenty of shelter from the wind and sun. The birds are fed from troughs which are put along in front of the coops. They are generally ready for their first meal, too, for some of them have been fasting for a couple of days. Being hungry when they go into the coops and having a feed of an appetising nature makes them soon settle down to

their new quarters, and they get to know when to expect their meals, for the fatterer who is good at his trade knows the importance of regularity of feeding. They only have two feeds per day, early morning and late at night; that is, in the summer, for, in winter, the hours of light being so much less, they must be fed during daylight. This trough-feeding goes on for a week or ten days, and after this they are crammed by machine every morning and night until fat and ripe for killing. If the higgler is able to keep up his supplies for the coops, he is able to kill one thousand per week, but when the home supplies fail he may have to buy Irish chickens. Higgler have the birds over in large numbers, and they are packed into what are called "Tops," each "Top" holding about four dozen birds. These chickens are put into the coops in the same way as the others which are brought in, and go through a similar process of fattening. I must say that the quality of the Irish chickens which come into the Heathfield and Uckfield Stations now is decidedly better than it was six or seven years ago. The chickens have improved in size, breed, colour, and healthiness. Some years ago it was not uncommon to see the greater part of the chickens in bad stages of roup, some of them having died on the way over, and others dying soon after being put up in the coops, but things have altered much in this respect, and it speaks well

for the good work in poultry instruction that has been done in Ireland the last few years. There is yet room for more improvement, for I notice some of the birds are still being bred with very yellow legs and flesh, and this must be stopped if the better prices are expected. We all have something to learn yet in the way of rearing and in getting the young chickens ready for market. The chicken which everyone who studies the market value should try and produce is the one that is ready for killing quite young. A bird which is of good heavy frame, and which can be kept growing at a fast rate from the time it is hatched without a check, is the bird which the high-class salesman wants, and which the high-class hotels want, too, and it requires art to get this kind of bird, which, at the age of twelve or thirteen weeks, will weigh $3\frac{1}{2}$ lb. to $4\frac{1}{2}$ lb., with a fine meaty breast. Of course, if we go in for heavy weights (I have lately killed some weighing 20 lb. the couple, fattened chickens, but they were twenty-two weeks old) they have to be much older, and they are consequently not so nice eating; there is a lot of offal and waste. I prefer the smaller bird well finished and plump.

To all who want to follow Sussex methods in rearing and producing table-birds I would say: Use milk in mixing up the meals, and if the real Sussex ground oat can be used, it will go far towards making a really fine table-chicken.

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BIBLIOGRAPHY OF POULTRY.

COMPILED BY EDWARD BROWN, F.L.S.

Compiler's Note.—With the object of securing as complete a list as possible of Poultry Books, it is proposed to give from time to time particulars as to such as are known. My own library embraces nearly 350 volumes on this subject, but there must be many not contained therein. I beg respectfully to request the kindly co-operation of owners of books not named, with a view to making the list exhaustive. In sending particulars I request that the following be stated: (1) Full title, and sub-title, if any; (2) Author's complete name, with any information respecting the writer; (3) Place of publication and name of publisher; (4) Date of publication, if given; (5) Number of edition; (6) Number of pages and size of book; (7) If illustrated; and (8) Whether in paper or cloth. Acknowledgment will be made of source of information. The books marked with an asterisk I have not been able to verify, and fuller details will be welcome both as to books and authors.

LIST No. 6 (Continued from page 388, April, 1910).

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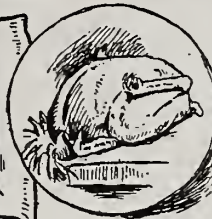
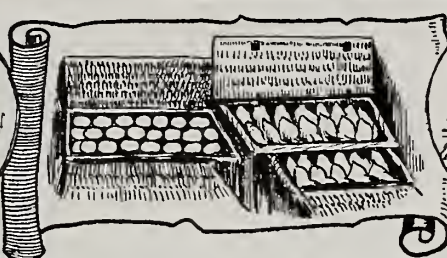
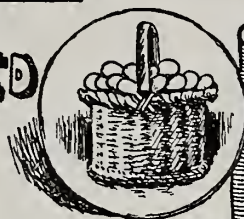
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(To be continued.)

THE MARKETS & MARKETING

CONDUCTED
By



VERNEY
CARTER

Week Ending March 23.

The demand for good English poultry was generally brisk, but the supply was inadequate, being scarcer than during the previous week. Belgian birds sold at from 3s. 6d. to 5s. each, and were of very good quality. Ducklings were scarce, also Poussins—the latter realising from 1s. 4d. to 1s. 8d. each. Foreign game was fairly plentiful, meeting with moderate demand. Foreign eggs were very plentiful, and values receded about 3d. to 1s. per 120 all round. The Continental demand was quiet, causing a glut on our markets. Many shippers made heavy losses. It was reported that there were 4,000 to 6,000 cases of eggs still in the cold stores at the Russian ports, as well as a large quantity of pickled eggs in the interior, which will be held over till next season. English and Irish eggs were very plentiful and cheap.

Week Ending March 30.

The holidays checked trade considerably: the fine weather tempted people away. Best quality of English poultry very scarce. Prices remained much the same as last week. The demand for live hens was good. These realised from 2s. to 3s. each. Poussins fetched from 1s. 4d. to 1s. 8d. each. Trade in foreign game was not good. There was a further drop in the values of foreign eggs. Although this was expected by shippers, very heavy losses resulted. Pickling had begun in earnest in Denmark, and this materially helped matters at the close of the week, and prevented a further fall. Both English and Irish eggs were very plentiful, and being offered at very reasonable prices caused foreign to decline. There was a large supply of Irish eggs on the Midland markets. Many English firms commenced to preserve. Eggs were the cheapest line in the provision trade. The number received during the week ending March 19 was the largest recorded during the corresponding period for the past three years—viz., 43,076,640.

Week Ending April 6.

Trade generally remained quiet owing to holidays; all classes of poultry realised much the same values as last week. The supply of English-fattened chicken was unequal to demand. Belgian and American cold-stored birds were in much demand, the former realising from 3s. 6d. to 5s. 6d. each. There was no change in the values of Poussins and ducklings, the latter not being up to the highest standard of quality. Foreign game trade dull, although prices were very reasonable.

Foreign eggs were inclined to be firmer owing to shorter arrivals. There was also a steadier demand. Danish eggs were much shorter owing to heavy pickling. The arrivals from Russia, thanks to better Continental demand, were smaller in quantity. The number of foreign eggs received during the week ending March 26 was 33,128,320, this being the largest quantity received during the corresponding period of the last three years. English and Irish eggs were plentiful, and were offered at low values.

Week Ending April 13.

Trade was brisker, demand being a little keener generally. Good English poultry was very scarce, retailers being obliged to fall back on foreign birds, and vendors naturally held out for good prices. Values remained practically the same as during the previous week. Guinea fowls were more plentiful and sold freely. Ducklings were more numerous. The arrivals of foreign eggs were not so many, but owing to large quantities being held over from the previous week prices did not improve to the extent expected. Prices in Germany and the Continent improved—pickling absorbed large quantities. The quantity received from abroad during the week ending April 2 was the smallest recorded for the period for the past three years—viz., 27,408,480.

English and Irish eggs were very plentiful, but the demand improved and thus steadied values.

FINDING A MARKET.

By C. A. FLATT.

IT is the aim in every business, and of every person who claims to possess any business instinct, to find the most profitable market for their goods. In connection with the selling of poultry and eggs for consumption, it has frequently been claimed that great advantages would accrue by the producer dealing direct with the consumer, and that, in so doing, he would put the middleman's profit, or at any rate a portion, into his own pocket; but is this so?

In raising poultry for table, irregular and even regular orders are constantly a worry. Always to have a supply of birds of a good quality ready to hand is next to impossible, and the best management cannot always cope with a regular order; it frequently means buying in; there may be a difficulty in obtaining what is required and a bare margin of profit.

TABLE OF PRICES REALISED FOR HOME, COLONIAL, AND FOREIGN POULTRY, GAME, AND EGGS FOR THE FOUR WEEKS ENDING APRIL 16, 1910.

ENGLISH POULTRY—LONDON MARKETS.

DESCRIPTION.	PRICES REALISED DURING THE MONTH.			
	1st Week.	2nd Week.	3rd Week.	4th Week.
Surrey Chickens	3/6 to 5/6	3/6 to 5/6	3/6 to 5/6	3/6 to 5/6
Sussex "	3/6 " 5/6	3/6 " 5/6	3/6 " 5/6	3/6 " 5/6
Yorkshire "	3/0 " 4/6	3/0 " 4/6	3/0 " 4/6	3/0 " 4/6
Boston "	3/0 " 4/6	3/6 " 4/6	3/0 " 4/6	3/0 " 4/6
Essex "	3/0 " 4/6	3/6 " 4/6	3/0 " 4/6	3/0 " 4/6
Capons	3/0 " 4/0	3/6 " 4/6	3/0 " 4/6	3/0 " 4/6
Irish Chickens	2/9 " 3/6	2/9 " 3/6	2/9 " 3/6	2/6 " 3/6
Live Hens.....	1/9 " 2/6	2/0 " 3/0	2/0 " 3/0	2/0 " 3/0
Aylesbury Ducklings..	4/6 " 6/6	4/6 " 6/6	4/9 " 6/6	4/9 " 6/6
Ducks	3/0 " 3/6	3/0 " 3/6	3/0 " 3/6	3/0 " 3/6
Geese.....	—	—	—	—
Guinea Fowls	2/9 " 3/3	2/9 " 3/3	2/9 " 3/0	2/9 " 3/3
Poussins'	1/5 " 1/6	1/5 " 1/6	1/5 " 1/6	1/4 " 1/6

ENGLISH GAME—LONDON MARKETS.

DESCRIPTION.	PRICES REALISED DURING THE MONTH.			
	1st Week.	2nd Week.	3rd Week.	4th Week.
Grouse	—	—	—	—
Partridges.....	—	—	—	—
Pheasants.....	—	—	—	—
Black Game	—	—	—	—
Hares	—	—	—	—
Rabbits, Tame	1/3 to 2/6	1/3 to 2/6	1/3 to 2/6	1/3 to 2/6
" Wild	0/6 " 1/0	0/6 " 1/0	0/6 " 1/0	0/6 " 1/0
Pigeons, Tame	—	—	—	—
" Wild	—	—	—	—
Wild Duck	2/0 " 3/0	3/3 " 3/3	2/0 " 3/0	2/0 " 3/0
Woodcock	—	—	—	—
Snipe.....	—	—	—	—
Plover	—	—	—	—

ENGLISH EGGS.

MARKETS.	PRICES REALISED DURING THE MONTH.			
	Per 120.	Per 120.	Per 120.	Per 120.
LONDON	9/6 to 11/0	9/2 to 10/6	8/9 to 10/0	8/3 to 10/0
Provinces.	Eggs per 1/-	Eggs per 1/-	Eggs per 1/-	Eggs per 1/-
MANCHESTER	11 to 13	—	12 to 14	13 to 15
BRISTOL	0/9 " 0/10	0/9 " 0/10	0/9 " 0/10	0/9 " 0/10
	per doz.	per doz.	per doz.	per doz.

FOREIGN POULTRY—LONDON MARKETS.

COUNTRIES OF ORIGIN.	PRICES REALISED DURING THE MONTH.			
	Chickens, each.	Ducks, Each.	Ducklings, Each.	Geese, Per lb.
Russia	1/6 to 2/9	—	—	—
Belgium	3/0 " 5/0	—	—	—
France	—	—	—	—
United States of America	—	—	—	—
Austria	—	—	—	—
Canada	—	—	—	—
Australia	—	—	—	—

FOREIGN GAME, LONDON MARKETS.

COUNTRIES OF ORIGIN.	DECLARED VALUES.	
	Game.	Poultry.
Capercailzie	1/6 " 1/9	—
Black Game.....	—	—
Partridges.....	1/8 " 1/9	£36,035
Pheasants.....	2/3 " 2/6	134
Bordeaux Pigeons	1/0 " 1/4	9
Hares	2/0 " 2/6	3,764
Rabbits	0/6 " 0/8	19,993
Snipe	—	26,433
Totals	£17,774	£86,550

IRISH EGGS.

DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.
	Per 120.	Per 120.	Per 120.	Per 120.
Irish Eggs	7/9 to 8/4	7/6 to 8/0	7/0 to 7/6	7/3 to 7/9

FOREIGN EGGS.

DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.
	Per 120.	Per 120.	Per 120.	Per 120.
French ...	8/6 to 9/0	8/0 to 8/6	7/9 to 8/6	8/3 to 9/0
Danish ...	8/6 " 9/3	7/6 " 8/9	7/6 " 8/9	8/0 " 9/0
Italian ...	7/3 " 8/4	7/6 " 8/3	7/6 " 8/9	7/9 " 8/9
Austrian ...	6/6 " 7/0	6/3 " 7/0	6/3 " 6/9	5/9 " 6/9
Russian ...	6/9 " 7/0	6/3 " 6/6	6/0 " 6/9	6/0 " 6/6
Australian..	—	—	—	—
Canadian..	—	—	—	—

IMPORTS OF EGGS.

MONTH ENDED MARCH 31, 1910.	
COUNTRIES OF ORIGIN.	Quantities in Gt. Hund.
Russia	174,256
Denmark	262,152
Germany	122,866
Italy	195,636
France	105,793
Austria-Hungary	269,889
Australia	—
Other Countries	270,241
Totals.....	1,400,773

Declared Values.

£53,945
116,484
46,025
89,870
56,045
101,889
—
94,940
£559,198

In a few instances, where only a small quantity of birds are reared with a few surplus cockerels to kill off, a private customer will probably prove the best means of disposal; but where several hundreds are raised for table purposes, lots of thirty or forty come on about equally, can be properly fattened, picked up at their best, and killed in one batch for the wholesale market.

In supplying private orders, it means you must keep some birds always more or less ready to kill, according to possible requirements. A fattened fowl will not long remain in the best condition, and once it has reached this, if not killed, it rapidly loses condition, which it never regains;

they merely have to be plucked, shaped, and properly chilled and graded into sizes if there are a number. Usually within two days a cheque is received, and the next batch can be got ready. By dealing fairly constantly with the same man, he will find the best sale for your birds, once he finds they can be relied upon. The commission is small and the carriage on large consignments at dealers' rates is not excessive. It is probable these birds will fetch several pence more in a shop than was received by the producer, but the expenses in marketing have not been so great and the trouble has been considerably less.

Private customers for eggs differ. Eggs are al-



A LANCASHIRE EGG-PRESERVING PLANT — THE LARGEST IN THE COUNTRY

[Copyright.]

consequently if there is an unexpected shortage in demand just when a batch are ready to kill, holding them a few days longer may mean a considerable loss. Birds will usually be required trussed ready for table. This involves extra labour and cannot be left to an unskilled person. The added labour of doing up several separate packages is a consideration, to say nothing of small accounts to send out and to collect.

By supplying the market direct, all the petty little details and worries are saved. The supplies can be arranged so as to meet a likely demand, and a reliable salesman with a business suitable to the class of goods marketed is selected. There may be a heavy day's work preparing the consignment, but

ways in demand, the supply rules the price, and the price will to a certain extent rule the demand. Individuals will take 5s. worth a week all the year round and not quarrel much at the shortage when prices rule high, and as long as care is taken to supply the eggs absolutely new laid, and to have a clear understanding as to payment of carriage and return of empty egg-boxes, there is little trouble attached. Shops cannot supply the genuine article at as reasonable a price as the producer, and probably do not take the same care, very often mixing first and second grade eggs. At certain seasons when there is a large surplus of eggs, if preserved, they can be sold as such at very good prices when eggs are again scarce.

ANSWERS TO CORRESPONDENTS.

The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered if possible in the issue following their receipt. The desire is to help those who are in any difficulty regarding the management of their poultry, and accordingly no charge for answering such Queries is made. Unless stated otherwise, Queries are answered by

F. W. PARTON,

Lecturer in Aviculture, The University, Leeds.

Winter Eggs.

I have kept a small number of cross-bred hens for a few years with very good results, and I am now thinking of increasing the number to about fifty. I have sufficient ground for this number, namely, slightly more than an acre, but I propose to change the breed by buying day-old chickens. Will you please state what breed would be most suitable for winter egg-production. The situation is well sheltered and the soil is a heavy loam, but without clay.—K. F. (Maidstone).

The most suitable breeds for winter egg-production are the general purpose breeds, which include Langshans, Orpingtons, Rhode Island Reds, Wyandottes and Plymouth Rocks. Any of these breeds will thrive well under the conditions you mention—viz., heavy loamy soil. We would draw your attention to the fact that you must arrange for the purchase of your day-old chickens immediately; as these general purpose breeds are several weeks later in attaining maturity than are the non-sitting races.

Green Cut Bone.

Is fresh cut green bone a good thing to give laying fowls to increase egg-production? The eggs are to be used for hatching purposes. If so, how much should be fed, and how often should it be given? I have about eighty hens.—M. L. (Leamington).

Green bones are a very valuable addition to the dietary of laying hens, as they encourage egg-production without being of a too stimulating nature. The bones should be ground or broken up finely, and mixed in their morning soft food. Give half an ounce per day per fowl in winter, but in summer three times per week will be sufficient.

Destroying the Germ.

(1.) I notice with many of my fowls, notably chicks and White Orpington hens, that the excrement cakes considerably on the vent feathers. Should the birds be washed? (2.) Can you give me directions how to destroy the embryo in eggs without affecting their eating qualities?—M. F. F. (Ceylon).

1. If the excrement cannot be removed from the affected hens by washing, the feathers round the vent should be plucked out, and vaseline applied to the bare parts. The cause of this is due to relaxation of the bowels, and the fowls should be dosed with one of the many remedies for diarrhoea.

2. Pierce the shell with a fine needle, taking care that the needle penetrates sufficiently to go through the inner membrane. This will kill the germ without affecting the edible qualities of the egg.

House Accommodation.

How many fowls may I keep in safety in a large shed measuring 42ft. by 15ft.? Is it better to keep

fowls in one very large flock or in several small ones? —H. B. M. (Rotherham).

You do not state the height of your house, or whether it has an open front? The latter must be regarded before stating definitely the number of fowls that the house will accommodate. As a general rule, it will be found that ten cubic feet should be allowed for each bird in an ordinary well-ventilated house. Should, however, the house have an open front, seven cubic feet per bird will be sufficient. Much better results will be obtained by keeping the fowls in small flocks. Were a house of the dimensions you name—viz., 42ft. by 15ft.—to be stocked to its full holding capacity, the number of eggs proportionately would not be nearly so many as if they were divided into several lots.

Crossing for Table.

I am going to produce chickens for the local markets, so should I use pure or cross-breeds? At present I only have mongrels, but I find them unsatisfactory. If I use pure birds, what variety shall I keep? If crosses, what are some good crosses?—H. T. W. B. (Erith).

First crosses between suitable breeds will undoubtedly be better for your purpose; and the following are some of the best crosses for table chickens:—Indian Game—Dorking, Faverolles—White or Buff Orpingtons. The first of these crosses should not, however, be attempted unless the conditions, climatic and otherwise, are favourable.

Breeds of Turkeys.

How many useful breeds of turkeys are there? I have been told there are four, but I only know of two? —T. W. (Rye).

There are several breeds of turkeys, but those that may be regarded as suitable for the economic breeder are three in number—namely, Bronze American, Black Norfolk, Cambridge Bronze. These may be taken in order of merit from a profitable standpoint.

Rhode Island Reds.

Are Rhode Island Reds suitable for a farmer, or only for breeders of fancy or prize fowl?—R. A. J. (Belfast).

Rhode Island Reds, of which there are two varieties—single and rose-comb—are admirably adapted for the farmer, and other utilitarian poultry-keepers. They are extremely hardy; grow very rapidly; are excellent layers, the eggs being deep brown in colour and quite up to the average size.

Charge for Hatching Eggs.

I have recently been asked to hatch hens' eggs in my incubator, and am at a loss to know what is a fair charge to make for doing so (the eggs are supplied by the man I am hatching them for). I shall therefore be

glad of your advice as to what would be a fair charge to make, per dozen.—M. E. L. (Godstone).

I do not know that there is any fixed scale of prices for doing the work you mention. It is more a matter of arrangement between the parties concerned. I have, however, met with people who have undertaken the work, and the price charged was one-third the value put upon the eggs by the person supplying them. Thus eggs valued at three shillings per dozen would mean one shilling per dozen for the privilege of having them hatched.

Single-Pen Tests.

Can you tell me what is meant by single-pen testing in connection with selection for strain-making, and do you think the method is one to be adopted?—P. B. H. (Lavant).

The method of single-pen testing has received some amount of attention recently, chiefly because of its whole-hearted advocacy by Mr. D. F. Laurie, the well-known poultry expert to the Government of South Australia. This authority in his annual report writes strongly in favour of single-testing pens, and chiefly because he claims them to be labour saving in comparison with trap-nests, which are admittedly somewhat of a tie. He suggests that each hen whose productive powers are to be tested should be confined in a separate pen; and he advises that each pen in a series comprise an area of three feet by twenty feet. As a further reduction of labour, he recommends that larger pens be used where possible, each providing accommodation for two pullets—one the layer of a white, and the other the layer of a brown or tinted egg. But although it may be admitted that such a system has its advantages, there are obvious drawbacks, such as, and especially, that of the unavoidable very close confinement during a sufficiently long test, and a consequent doubtful breeding condition. The penning of birds for trap-nesting need not involve such very close confinement as is sometimes imposed, but no one would seriously contemplate the erection of really sufficiently large pens for the use of single birds, and breeding must be contemplated in the selection. However, the subject is one that may very well be more fully investigated, and you might find it interesting to experiment in this direction.

A Fattening Project.

I should be glad of your opinion as to the prospects of a fattening establishment near London. I have sufficient accommodation and a fair quantity of surplus milk. The distance to market is not great, and I do not think the carriage on feeding stuffs would be excessive. I should, of course, engage a good fatterer, but the question at issue is one of supply. Can I get the birds?—Dairyman (Northern Heights).

A very similar enterprise was undertaken a few years ago and only a few miles distant from you; moreover, the circumstances were very much like yours in the main details. The dairyman in question was in a large way of business, and conceived the idea of utilising the surplus milk in the way you suggest. He set up fattening-coops and engaged one of the best men he could get from Sussex, but the great difficulty was that which you foresee—viz., the adequate supply of suitable lean chickens. I cannot say that the discontinuance of fattening was in this instance entirely due to this difficulty, because I believe there was also some

objection raised on account of the nearness of the fattening quarters to some villa residences, but the supply was always a troublesome matter. In any such circumstances there is no possibility of local collection, and the only chance is to tap the chief sources of the lean chicken supply in Ireland, Wales, or one of the English rearing and collecting districts. Unless you can do this, and at reasonable rates for carriage, I should advise you to abandon the idea. J. W. H.

Short Replies.

R. A. J. (Belfast): No.

M. R. S. (Dumfries): No.

H. R. T. (Tottenham): We do not know.

F. J. R. (Harrow): See article in this issue.

E. M. (Hampstead): From 1905 to 1909 inclusive.

H. T. W. (Preston): See ILLUSTRATED POULTRY RECORD, May, 1909.

E. R. (Queenstown): (1) 120 to 130. (2) Yes. (3) 75 p.c. (4) White.

W. B. (Aberdeen): "The Amateur Poultry-Keeper." Price 1s. 2d., post free, from this office.

H. J. R. T. (Newark): The late Mr. William Cook, Orpington House, St. Mary Cray, Kent.

POULTRY - KEEPING AND THE PRESERVATION OF FOXES.

A MEETING was held at Tattersall's on Tuesday, April 12, between the Committee of the Masters of Fox Hounds Association and the Representatives appointed by the Poultry Club, the Utility Poultry Club, and the National Poultry Organisation Society to discuss the resolutions previously passed by the Conference of the Representatives of the three Societies and sent by them to the M.F.H. Association. The resolutions were as follows:—

(1) That this conference, consisting of representatives of the Poultry Club, the National Poultry Organisation Society, and the Utility Poultry Club disclaims any hostility to fox hunting as a national sport.

(2) That in the opinion of this conference it is felt that the time has arrived when in the interests of poultry-keepers some steps should be taken with a view to preventing the loss arising from the depredations through foxes and of securing fair compensation where such loss has arisen.

(3) That the Masters of Foxhounds Association be invited to appoint representatives to meet the members of this conference at a further conference to be mutually arranged.

General propositions were put forward by the representatives of the three societies with a view to arriving at a satisfactory solution of the position in which poultry-keepers were at present placed, and to remedy the injustices. The lines of the propositions were:—

(1) That the Hunts should define their boundaries inside which they would entertain claims for compensation, so that residents in those districts would know to whom they had to look for payment.

(2) That small sub-committees be appointed to deal with such claims, and such sub-committees should be so numerous that there should be practically one in every two or three parishes, and that in connection with the sub-committees it would be a good thing to have one expert poultry-keeper to act as assessor in case of dispute.

(3) That compensation be based on actual value, and that claims be looked into and settled promptly.

The suggestions were discussed, and the Chairman of the M.F.H. Association pointed out that the Committee had no power to legislate for or control individual Hunts, but that the Committee would circularise every Hunt on the matter, giving the views of the Representatives of the Poultry Societies, and also bring the matter up at the annual general meeting of the Association in May.

The Representatives of the Poultry Societies then pressed that, after their proposals had been submitted to every Hunt and the general meeting of the M.F.H. Association held, the present Committee or some other Committee with full power to come to some definite arrangement and settlement should meet them at a subsequent meeting.

Issued under the authority of the Committee of the M.F.H. Association and the Representatives of the Societies, 68B, Lincoln's Inn Fields, London, W.C.

SIX MONTHS' LAYING COMPETITION, 1909-10.

Under the Management of the Street and District Collecting Depot, Ltd., at Street Farm, Street, S.O., Somerset.

THIS competition was concluded on March 31, having lasted since October 1, 1909, and we give a short extract of the results relating to the top twenty pens. A full report will be prepared in the course of a week or ten days, and may be obtained by sending a stamped and addressed foolscap envelope to the secretary.

It will be noted that positions depend upon the value of the eggs laid by each pen. All eggs have been weighed, and each 20zs. reckoned as an egg, while the price per dozen has varied as follows: Oct. 1-15, 1s. 4d.; Oct. 16-31, 1s. 6d.; Nov. 1-15, 1s. 8d.; Nov. 16-30, 1s. 10d.; Dec. 1-15, 1s. 8d.;

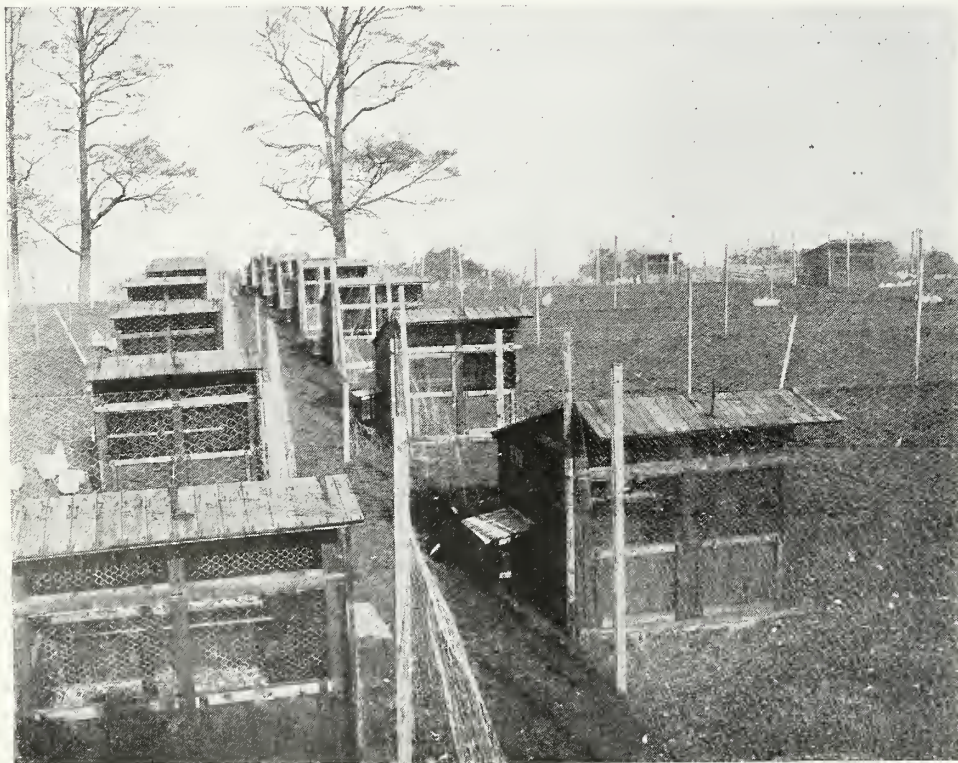
Dec. 16-31, 1s. 6d.; Jan. 1-15, 1s. 4d.; Jan. 16-31, 1s. 2d.; Feb. 1-14, 1s. 1d.; Feb. 15-28, 1s.; March 1-15, 10d.; and March 16-31, 8d.

Position.	Pen. No.	Breed.	Eggs.	Weight, lb. ozs.	Value, £ s. d.	Owner.
1	8	White Wyandottes	586	73	3 3 9 3/4	Mr. T. Barron, Catforth, Preston.
2	40	Buff Rocks	550	75	3 3 6 1/4	Mr. A. M. Walton, Market Lavington.
3	14	Buff Orpingtons	581	74	3 3 7 1/2	Mr. J. F. Monelle, Street, Somerset.
4	21	Buff Orpingtons	494	68	2 19 6 1/2	Miss M. G. Cheetham, Afon, St. Andrews.
5	23	Anconas	576	72	2 18 10 3/4	Capt. F. Pierson Webber, Stockton, Rugby.
6	10	White Wyandottes	492	70	2 18 11 1/2	Mr. S. Shepherd, Holmes Chapel.
7	3	White Wyandottes	574	68	2 17 10 1/2	Mr. T. Elmer, Catforth, Preston.
8	7	White Wyandottes	581	70	2 17 8	Mr. P. R. Morse, Witham, Essex.
9	39	Buff Rocks	535	69	2 17 5 1/2	Mrs. Wakefield, Bredon, Tewkesbury.
10	16	Buff Orpingtons	526	67	2 17 0 1/4	The Cairnie Poultry Farm, Stevenage.
11	17	Buff Orpingtons	530	65	2 15 3	Mr. T. Barron, Catforth, Preston.
12	13	Buff Orpingtons	511	66	2 15 0 3/4	Mr. J. W. Clark, Evesham.
13	26	White Leghorns	509	65	2 14 2 1/2	Mr. T. Elmer, Catforth, Preston.
14	22	Anconas	453	62	2 12 6 1/2	Messrs. Eastman Bros., Hadleigh.
15	25	White Leghorns	523	62	2 8 11 1/4	Mr. E. Cam, Houghton, Preston.
16	6	White Wyandottes	455	57	2 7 9	Mrs. Dalziel, Oakley, Fife.
17	37	Faverolles	459	57	2 7 0 1/2	Mr. C. H. Whitlow, Northover, Gladstonbury.
18	27	White Leghorns	475	59	2 6 9 3/4	Mr. Tom Barron, Catforth, Preston.
19	19	Buff Orpingtons	470	54	2 6 4	Mr. Wm. Barron, Bartle, Preston.
20	9	White Wyandottes	502	55	2 6 6 2	Mr. Wm. Barron, Bartle, Preston.

W. REYNOLDS, Secretary.

Total for 6 Months.

April 1, 1910.



THE SCENE OF THE STREET LAYING COMPETITION. [Copyright.]

THE PARTRIDGE WYANDOTTE CLUB YEAR-BOOK, 1910.

THE somewhat belated appearance of this Year-Book, due to causes with which club secretaries are familiar, and over which they have no control, does not diminish its interest to admirers of the Partridge variety. The publication is, as usual, well put together, and contains very readable matter in the presidential address, the hon. secretary's report, and the contributions from the club's Welsh and Scottish representatives. Mr. Elkington's report is perhaps too straightforward to be cheerful reading, comprising, as it does, a frank declaration of the failure of the last club show, with the attendant loss of prestige, and a strongly-worded complaint of the indifference shown by breeders to the interests of the club which has worked so strenuously to popularise this variety. "A very big effort," he writes, "is needed to maintain the position we have gained during the last seven years." We hope, and anticipate, that next year's report will prove that big effort to have been made. After all, the club is strong numerically, the officials are nothing if not energetic and self-sacrificing, and the variety, if it possesses some few detractors, has also its very strong partisans. Again, the financial disasters of last year were due to a combination of unfortunate circumstances which are unlikely to repeat themselves; the less likely after the "waking-up" which this report administers to the membership—present and prospective.

MR. W. M. BELL.

WE heartily congratulate Mr. W. M. Bell upon his election at the head of the poll for the Ringwood Rural District Council. There were fourteen candidates for the seven places, and Mr. Bell, of the St. Leonard's Poultry Farm, scored 310 votes—a record, since the previous highest individual total was 250.

SELECTIONS FROM CON- TEMPORARIES.

Correspondents frequently ask for information as to quantities of food to be given to poultry of various ages, and what the average weight should be at various stages of development. This must, of course, vary according to different breeds, as Leg-horns, Hamburgs, Campines, Redcaps, Anconas, Andalusians, Minorcas, &c., being smaller than Orpingtons, Wyandottes, Plymouth Rocks, Houdans, Faverolles, &c., are lighter in weight, and require less food than the heavier breeds. A fair computation will be 1lb. per month, for an average chick at four weeks old should weigh 8oz. to 12oz., at six weeks 16oz. to 20oz., eight weeks 1½lb. to 2lb. at three months 3lb. is a general weight. A well-developed Buff Orpington, for instance, at this age will weigh 4lb., at five months 5½lb. to 6lb., and at six months 6lb. to 6½lb., and sometimes more. To attain these weights it is absolutely necessary that from their earliest chickenhood the birds should be fed on good, nourishing food of the best obtain-

able kind. (That which gives the best results is invariably the cheapest in the end.) Two-thirds should be of soft food, containing 15 to 20 per cent. of flesh-forming material, a due proportion of fat and mineral matter, so that a large frame shall be formed on which to build up plenty of flesh, fibre, and tissue. As to the quantity, it may approximately be given as: 100 chickens weighing 1lb. each require 14lb. of food per day, say 2¼oz. each; the same number of 2lb. birds require 20lb., or about 3oz. each; 50 birds 4lb. each 14lb., or 4½oz. each; 20 birds 6lb. each 6lb., or 6oz. each. The heavier and older a bird becomes it naturally requires less food in proportion to its weight, after it has grown to, say, six or eight months. The writer impresses this fact upon his readers, otherwise a great amount of food will be wasted, and, of course, where a large number of birds are kept it would mean a very serious loss, for a wise economy must be the keynote of successful poultry culture. The above figures must only be taken as a general guide, and should vary according to the size of the breed, as previously mentioned, whilst they only apply to growing fowls.—*Daily Telegraph*.

Ode to a So-Called Spring Chicken.

Long since, in stately progress through your yard,
From all things underfoot you felt revolt,
Skyward you fixed your passionate regard,
An other-worldly poult.
Your voice as well, that ushered in the morn,
And roused the farmer from his rural crib,
Clear as the clarion of a motor-horn
(And reproduced *ad lib.*)—
This also marked you from the common group
Of mortal creatures with their few brief suns;
You were not meant to know an earthly coop,
Nor pace terrestrial runs.
And so, in death, 'twas but the baser part
(That had not known the thrill of joy and pain,
The hope to soar, the ecstasy of art,—
Your legs, to make it plain)—
'Twas only these that served our simple clay,
And passed the boundaries of human lips;
And I have dined on one of them to-day
With *pommes de terre* in chips.
But not the breast!—where beat the ardent soul
Which made you the challenger of rival kings;
That mounted up to some ethereal goal,
Rapt on your seraph wings.
"How do you know," the careless scoffer seeks,
"What after-world awaits domestic brutes?"
"Have I not dined" (I answer) "here for weeks
On limbs as tough as boots?"
And when the waiter hears my murmured plaint
He tells me (with that low respectful cough,
As who should speak of some departed saint)
The nobler parts are off.
"Off!" How he puts it in a single word!
I see you cast your mortal coil and rise,
Leaving no relic of the carnal bird
Save amputated thighs.

—*Punch*.

Egg-Fertility.

An egg receives its fertility from the male bird, but the condition of the female at the time of laying has much to do with the hatching quality of the egg. The laying hen must be healthy and properly fed

or she cannot produce an egg capable of carrying the germ to a successful hatch. Hens kept in unhealthy quarters or too closely confined are not likely to lay eggs that will produce strong, healthy chickens, if indeed they produce any whatever. Hens suffering from disease or infested with vermin may lay, but eggs from such hens will rarely hatch, and even if they do hatch the chickens will not be likely to mature into vigorous or growthy fowls. Hence in order to secure hatchable eggs the hens must be healthy, have plenty of outdoor exercise, and be fed upon an assorted or balanced ration. An exclusive corn (maize) diet will not make for fertility. Fowls in confinement must have a mixed diet and plenty of grit and bone, with meats, clovers, or other substances in the line of nitrogenous food. They must be kept free from lice,

That one reason, however, existed, and is a sufficient reason why eggs and poultry are not exported. The American consumer of poultry is the American producers' best customer. Our Government Departments and officials advocating exports of poultry simply reveal their own ignorance of the situation. Consul-General Skinner seems not to have taken any trouble to find out whether prices were higher at home, but went on with his report, concluding with some remarks designed to wake somebody to a realisation of lost opportunities. Had he looked a little into the situation at home he would have found that when eggs were $21\frac{1}{2}$ cents a dozen in London, nearby eggs were selling for more than double that price in Boston and New York, and Western eggs were more than 50 per cent. higher. The grade of eggs in these markets nearest the London price for fresh eggs was *Western dirties*.—*Farm Poultry*.



A MIXED FLOCK OF JANUARY-HATCHED CHICKENS.

[Copyright

and must have plenty of litter, straw, hay, chaff, or leaves in which to scratch. Fowls having free runs need less attention to diet and are more apt to lay fertile eggs than fowls closely imprisoned.—*Natal Agricultural Journal*.

Why We Do Not Export Eggs and Poultry.

Our Consul-General at Hamburg has been making some study of the egg situation in Germany, and thinks he sees a chance for American farmers to supply a part of the eggs Germany has to buy from other countries. Says he :

Though eggs at wholesale are higher now (December, 1908) than they have been for twenty years, being worth about $21\frac{1}{2}$ cents per dozen in the London market, the regulating market of the world, the United States is having no part of the German business. There is no reason why this should be true unless it is that domestic prices are higher.

Feeding Ducks for Egg-Production.

We should endeavour to obtain eggs when they fetch the best prices, and when they are of the most use when set at home. Therefore, January, February, March, and April are the months in which we should feed our stock ducks on scalded biscuit meal and middlings for breakfast, giving them plenty of meat at mid-day—paunches, lights, &c., or freshly-cut green bone—and the corn at night.

It is natural for a duck to have some kind of meat, for when ducks have their liberty they can pick up a good many slugs and grubs, which come out in the dark (as ducks feed after dark when not confined), and a certain number of small fish; and if we want to get eggs early in the year we must feed them accordingly, giving fresh or granulated meat, or whatever is most convenient to the owner. Those who do not mind a little trouble, and want

OUR BOOK MARKET.

Any of the following books will be supplied at the prices named. Cash must always accompany orders.

Incubators and their Management. By J. H. SUTCLIFFE. Fifth Edition. Illustrated. Price, post free, 1/2.

Lett's Poultry-Keeper's Account Book. Edited by LEWIS WRIGHT. Cr. 8vo. Post free in the United Kingdom, the Colonies, and foreign countries, 2/8.

Poultry and Egg Raising at Home. By W. M. ELKINGTON. Illustrated. Price, post free, 1/2.

Poultry Culture for Profit. By Rev. T. W. STURGES, M.A. Third Edition. Cr. 8vo, 134 pages. Fully illustrated. Post free in the United Kingdom, the Colonies, and foreign countries, paper covers, 1/3; cloth, 1/9.

Poultry for Prizes and Profit. By JAMES LONG. New Edition. Revised by W. M. ELKINGTON. Illustrated. Post free 6/4 in the United Kingdom; in the Colonies and abroad, 7/6.

Poultry-Keeping as an Industry for Farmers and Cottagers. By EDWARD BROWN, F.L.S., Secretary of the National Poultry Organisation Society. Sixth Edition. 4to, 206 pages, fully illustrated. Post free in the United Kingdom, 6/6; 6/9 to the Colonies and foreign countries.

Popular Poultry-Keeping. By W. M. ELKINGTON. Illustrated. Price, post free, 1/2.

Possibilities of Modern Poultry-Farming. By J. STEPHEN HICKS and W. H. G. EWART. Price, 1/1½ post free.

Progressive Poultry Culture. By ARTHUR A. BRIGHAM, B.S., Ph.D. Illustrated. 300 pages. Post free, 6/6.

Races of Domestic Poultry. By EDWARD BROWN, F.L.S., Secretary of the National Poultry Organisation Society. 4to, 234 pages, with chapters on breeding, fully illustrated. Post free in the United Kingdom, 6/6; 6/9 to the Colonies and foreign countries.

Record Poultry Book. Nine illustrations. Written by Experts. Post free, 1½d.

Report on the Poultry Industry in America. By EDWARD BROWN, F.L.S. Third Edition. Fully illustrated. Price, post free, 1/3.

Report on the Poultry Industry in Denmark and Sweden. By EDWARD BROWN, F.L.S. Fully illustrated. Price, post free, 1/3.

The Amateur Poultry-Keeper. By W. M. ELKINGTON. 94 pages, with 15 pages of illustrations. Post free, 1/2.

The New Book of Poultry. By LEWIS WRIGHT. Demy 4to, 600 pages, with many coloured plates, &c. Post free in the United Kingdom, 21/10; 24/- to the Colonies and foreign countries.

The Poultry Manual. By Rev. T. W. STURGES, M.A. 600 pages, 52 illustrations. Price, 6/6 post free.

Report on the Second National Poultry Conference, 1907. Edited by EDWARD BROWN, F.L.S. 382 pages, with nine illustrations. Post free in the United Kingdom, 5/6; in the Colonies and foreign countries, 6/-.

The Practical Poultry-Keeper. By LEWIS WRIGHT. Cr. 8vo, 320 pages, with eight coloured plates and other illustrations. Post free in the United Kingdom, 3/10; 4/- to the Colonies and foreign countries.

eggs, should boil the corn three or four times a week, and have it nice and warm in the evening. This should be put into troughs, and during the short days of winter they should be fed at about seven or eight o'clock where people do not mind the trouble. It is very necessary to give the ducks grit, and this should be put into the water, so that they can get at it readily.—*Smallholder*.

TRADE NOTICES.

Dispatch Printing Company.

Some attractive catalogues have been printed by the Dispatch Printing Company, of Manchester Road, Burnley, and attention should be drawn to the high-class character of the work produced by this firm. They were responsible, as we may remind our readers, for the Report of the N.U.P.S. Four Months' Laying Competition, upon which we commented in our last issue. Clean, clear type and tasteful design on the cover and elsewhere are essential to the modern catalogue, and the resource of the Dispatch Company in these directions is considerable.

Charles Toope and Son.

This well-known firm of heating experts, whose premises are in Stepney Square, London, E., inform us that during the past year they have disposed of 165 of their Asbestos Incubators, of all sizes, most of these being shipped to South Africa and New Zealand. Other exportations were to Russia, Germany, Holland, Switzerland, Sweden, Italy, Argentine, Chili, and Canada. These incubators, so recently put on the market, have given every satisfaction. Another speciality is brooder heaters on the American plan, and the firm are also turning out a number of brooder houses complete, for 200 chicks and upwards.

The Coaley Poultry-Farm.

Miss W. Edwards, of this Gloucestershire establishment, sends us her catalogue for the current year. The publication is well printed and illustrated, contains full details of the stock kept, and includes a sketch of Miss Edwards's fifteen years' career as a poultry-farmer, which will be read with interest by her many friends in the Ladies' Poultry Club and elsewhere.

Mr. Edward Cam,

Of the Glen Poultry Farm, Hoghton, near Preston, is one of the Lancashire breeders of utility White Wyandottes who have achieved unusual success in the laying competitions. His catalogue for the current year gives details of his triumphs in the Northern Utility Poultry Society's competitions and at Street, and full particulars regarding the sale of eggs for hatching. White Leghorns and Buff Orpingtons are the other breeds kept at this establishment. Mr. Cam has recently opened a business in day-old chicks, and as a result of a first year's trading has sent 500 of these to various parts of the kingdom, besides rearing over a thousand for his own use.

Mr. Tamlin's Exports.

The following is a list of Mr. W. Tamlin's exports for the month of March, 1910: Ten 100 incubators, ten 60 incubators, five 100 foster-mothers,

BROWN, DOBSON, & Co., Ltd.,
15, Essex St., Strand, LONDON, W.C.

to A. Newcomb and Co., New Zealand, per ss. Nerchana, twenty 100 incubators, ten 60 incubators, twenty 100 foster-mothers, to M. Andre Masson, France; ten 60 incubators, fifteen 100 incubators, six 200 incubators, ten 100 foster-mothers, to Fletcher Bradley, Canada, per ss. Lake Manitoba; ten 100 incubators, five 200 incubators, ten 60 incubators, two 30-egg "Ostrich" incubators, six 100 foster-mothers, to Oakes and Co., Ltd., India, per ss. Canara; six 100 incubators, six 60 incubators, three 100 foster-mothers, to H. E. Mascarenhas, Portugal; one 100 incubator, to Sergeant F. Oliver, Malta, per the Prince Line; one 100 incubator, to Baroness d'Overshie, Belgium; one 100 incubator, to Baron E. Herry, Belgium; and one 100 incubator, one 60 foster-mother, to G. Henroz, Belgium.

RAILWAY ANNOUNCEMENTS.

L. & N.W.R. Improvements in May.

Some interesting improvements will be found in the London and North-Western Time-table for May. In order to give London passengers an earlier arrival in Liverpool, a new express train will leave Crewe at 11.44 a.m. after the arrival of the down Irish Mail at 11.30 a.m., and be due at Liverpool at 12.30 p.m. Hitherto travellers desirous of reaching Liverpool by noon have had to start from Euston at 7.10 a.m., a train unprovided with breakfast cars, which they will find on the new connection leaving London at 8.30 a.m. A greatly improved service will be provided between Birmingham, Liverpool, and Manchester by the following new trains, which will run every week-day except Saturday.

Birmingham	dep.	8.30 a.m.
Wolverhampton	arr.	8.50 "
"	dep.	8.53 "
Crewe	arr.	9.38 "
Crewe	dep.	9.42 a.m.
Liverpool	arr.	10.30 "
Crewe	dep.	9.46 a.m.
Manchester	arr.	10.30 "
Manchester	dep.	8.40 a.m.
Stockport	"	8.50 "
Crewe	arr.	9.23 "
"	dep.	9.30 "
Wolverhampton	arr.	10.22 "
"	dep.	10.25 "
Birmingham	arr.	10.45 "
Liverpool	dep.	4.30 p.m.
Manchester	dep.	4.35 p.m.
Crewe	arr.	5.13 "
"	dep.	5.21 "
Wolverhampton	arr.	6.12 "
"	dep.	6.15 "
Birmingham	arr.	6.35 "

The 9.46 a.m. from Crewe and the 4.35 p.m. from Manchester will run via Styal. Hitherto the fastest connection from Birmingham to Manchester and Liverpool has occupied 2 hr. 7 min. and 2 hr. 10 min. respectively, while it has not been possible to travel from either Manchester or Liverpool to Birmingham in less time than 2 hr. 17 min. Since the 11th inst., the typewriting facilities originating with the "City to City" express have been extended to the 8.40 a.m. train from Birmingham to Euston, and the 4.45 p.m. from Euston to Birmingham, both two-hour expresses.

Great Eastern Railway.

Many additions and improvements will be made both in the local and main line services of the

Great Eastern Railway, commencing on May 1. Principal amongst these will be the provision of an express morning and evening service between London and Clacton-on-Sea.

A new train will leave Clacton daily on week-days at 7.3 a.m., being due to arrive at Liverpool Street at 8.52 a.m. This, in addition to other morning express trains which will leave Clacton at 7.40, 8.45, and 9.59 a.m., will no doubt prove a great attraction for London business men to make Clacton a place of residence in future.

A return service in the evening will be equally convenient, express trains leaving Liverpool Street at 5.6, 6.20, and 8.45 p.m., being due to arrive at Clacton at 6.50, 8.10, and 10.26 p.m. respectively. Connections with both up and down trains will be given at Thorpe-le-Stoke for Frinton-on-Sea and Walton-on-Naze.

A new Sunday service of restaurant car trains will be run, luncheon being served on the 9.10 a.m. train from Liverpool Street to Norwich (Victoria), and dinner on the 6.20 p.m. train from Norwich (Victoria) to Liverpool Street, both of these trains serving the principal stations *en route*.

G.W.R. May Improvements.

The usual spring alterations and additions to the train service which have been found necessary in previous years in connection with the London riverside season and the early summer traffic in parts of the country where the season is early are repeated, with a number of additional alterations of a minor character.

Week-end visitors to the upper reaches of the Thames will have a new train on Monday mornings, leaving Didcot at 7.10 a.m., enabling passengers to join the 7.55 a.m. from Reading, due at Paddington at 9.0 a.m.

An additional morning train will be run between Paddington and High Wycombe, via the G.W. and G.C. joint line. The down train will leave Paddington at 5.45 a.m., and, calling at Westbourne Park, Ealing, and West Ealing, should be helpful to the workmen who are now finding employment in the Gerrard's Cross and Beaconsfield district. The up train will leave High Wycombe at 7.20 a.m., and, calling at the stations on the joint line, will be due at Paddington at 8.10 a.m., and so enable business men to be in their places soon after 8.30 a.m.

A market train will be run from Moretonhampstead to Newton Abbot at 8.5 a.m. on Wednesdays.

The service on the Kingsbridge branch will be improved on Thursdays and Saturdays, which should encourage visitors from Plymouth and the neighbourhood to visit the lovely district between Kingsbridge, Salcombe, and Slapton Sands.

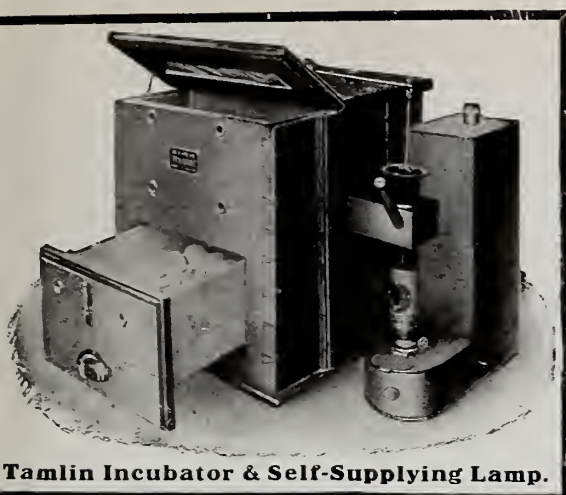
The evening service on the Milford Haven branch will be increased, and on the Fishguard Harbour line a new service will be given by means of a rail motor-car, leaving Fishguard at 10.25 a.m., connecting at Whitland with the 10.40 a.m. train from Neyland, due Paddington at 6.10 p.m.

The new lines between Limpley Stoke and Hallatrow, and between Filton Junction and Avonmouth, will be opened early in May. The services will be announced by special bills.

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TAMLIN'S INCUBATOR

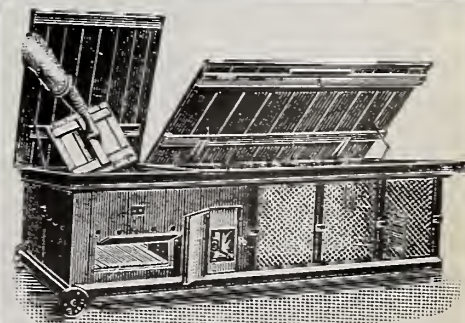
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